

LEONARD LAWRENCE

CEDARVILLE

1817

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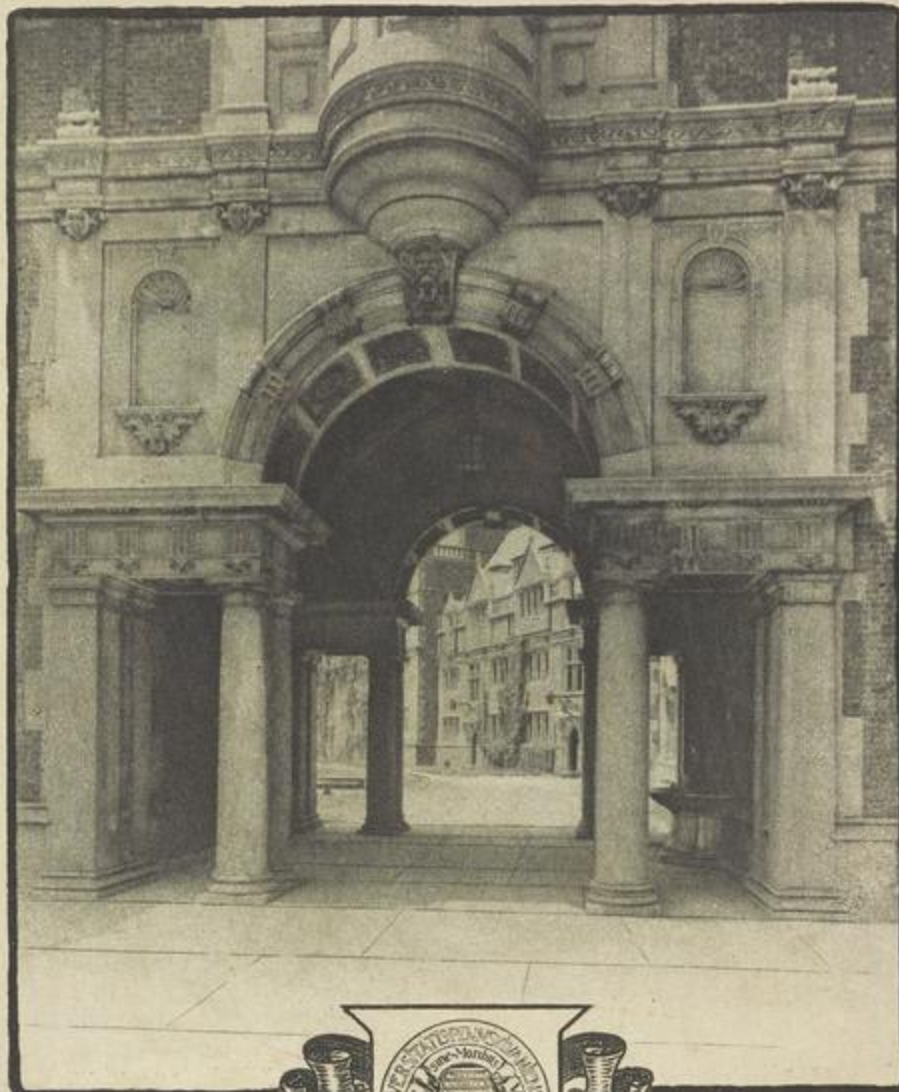
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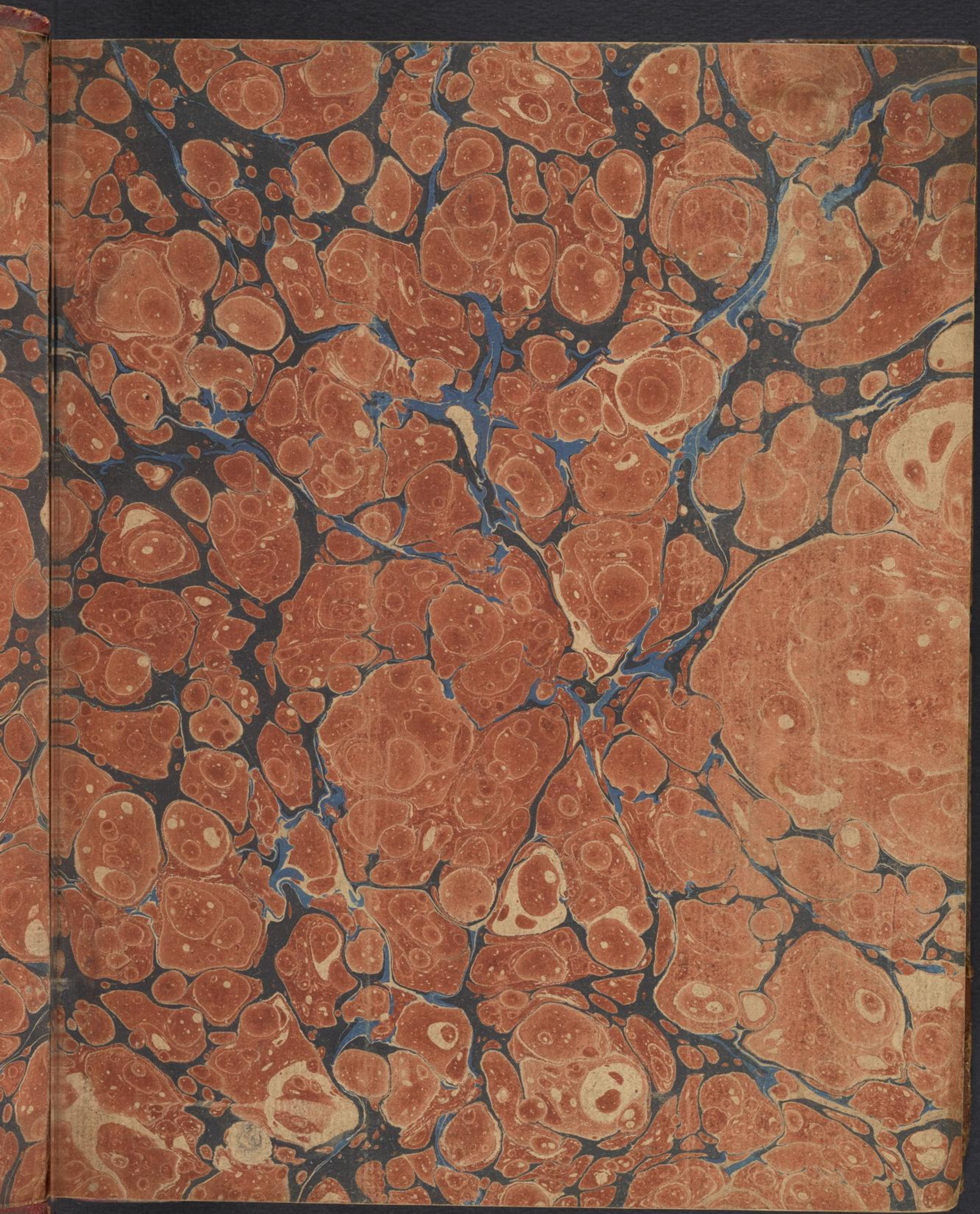
CLASS

No.

ACCESSION

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G B Hochstetler M.D.

Notes from the Lectures
of Philip S. Physick M.D. on Surgery
In the University of Penna 1816-17

This book given by Dr Leonard Lawrence
of Cedarville Ayrway to Dr G B Hotchkiss
of Media Pa in May 1855

Dr Lawrence wrote these reports as a student
at the time the lectures were delivered

G B H

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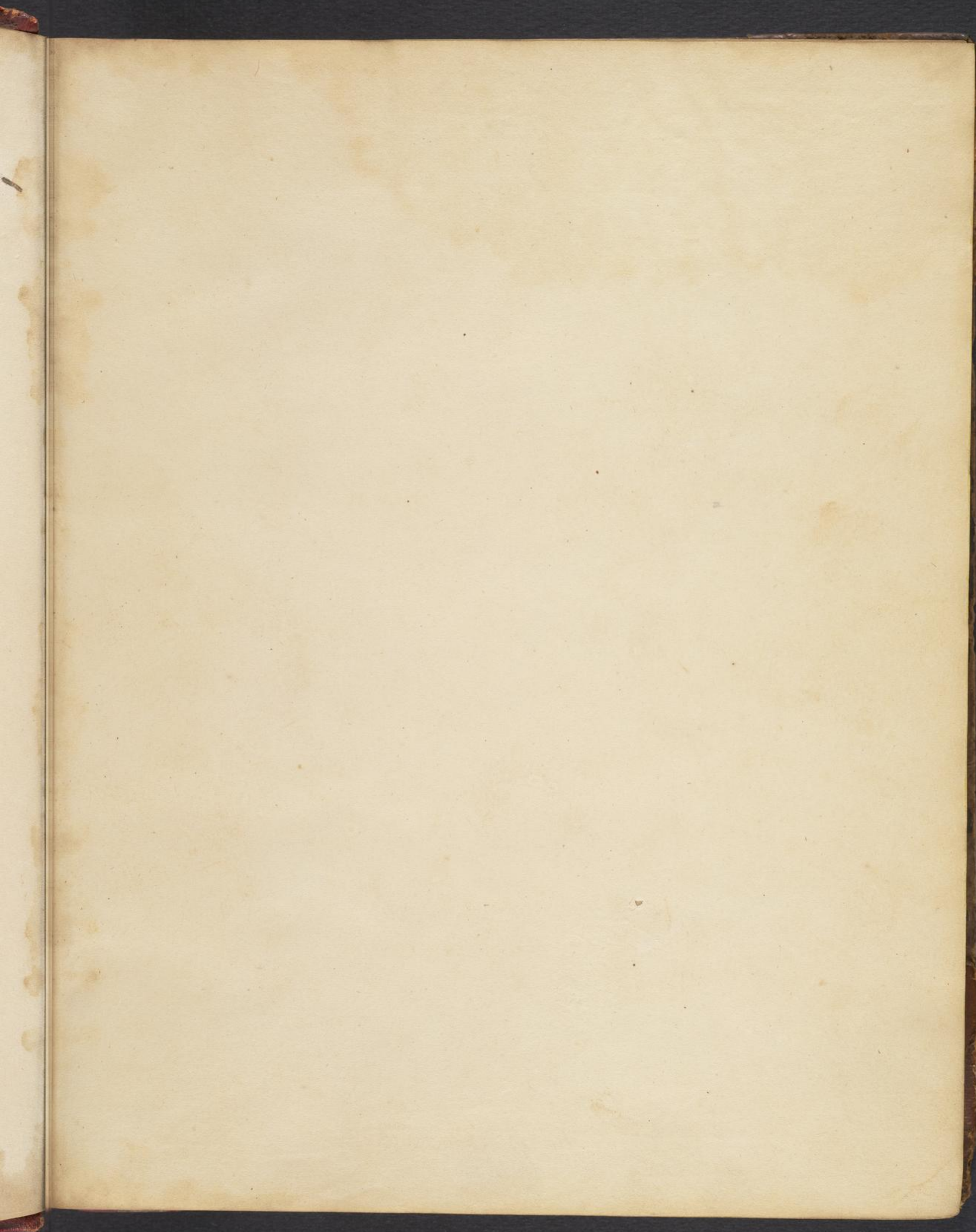
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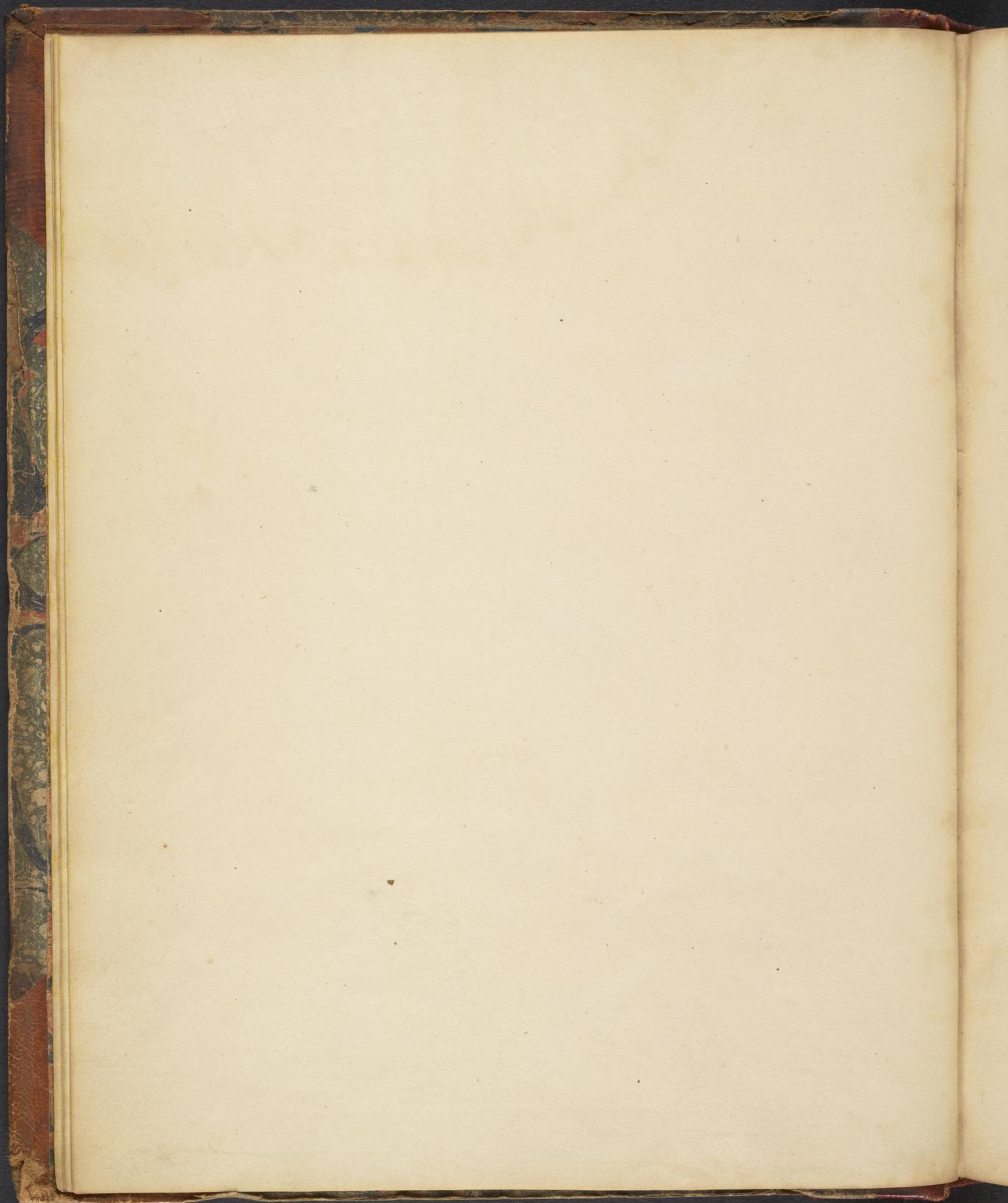
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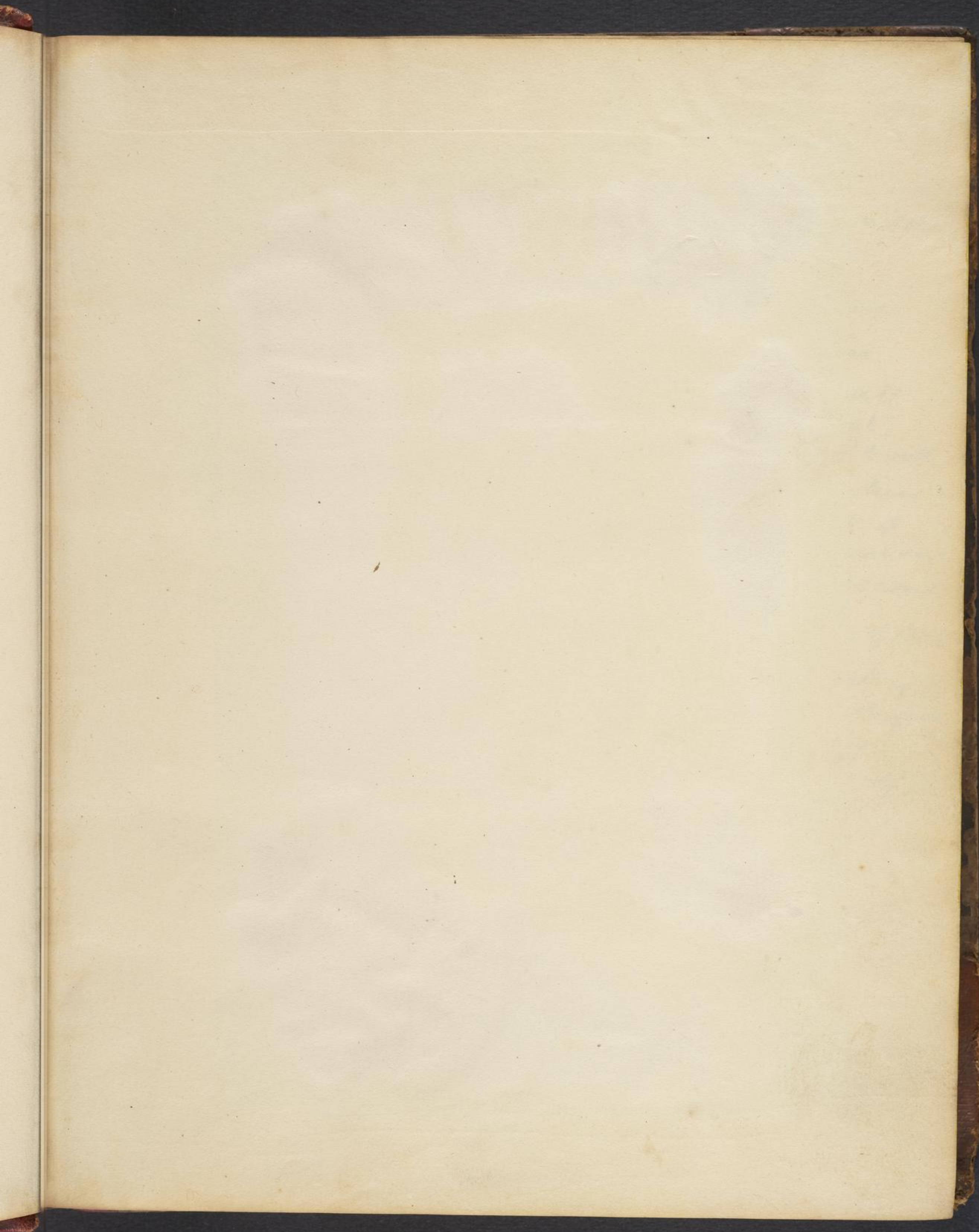
Surgery

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Dr. G. B. HOTCHKIN,

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Dr Jas Tyson I send the book
I shall be glad to hear if you
value it

I thought that; I had right
to add my own record as not
discreditable to the University's
diploma Perhaps it is an old
cripple's vanity of the past.

I will provide that notice
of my death shall be sent to
you and you can paste it in
this book if you choose

It won't be long

Yours G. B. Hotchkiss

This book has been a valued and constantly used
text-book for me about 30 years

Now, sick, paralytic, and helpless from arthritic
Chronic Diarrhoea and Rheumatism; begun in
the mud of Virginia in 1862; making all
preparations to enter into the blessed rest,
where "There is no pain"; I deposit this book
in the Library of the University of Penna where
it will be sacredly kept and appreciated I
am sure. It bears memorial of three genera-
tions, all honorable, at least, and has record
of 70 years, almost

G. B. Hotchkiss Class of 1855

Surgeon 1st Penna Reserve Cavalry
Surgeon in Chief of different Brigades
under Generals Bayard & Gregg
and Surgeon in charge of many
Hospitals of Regiment, Brigade,
Division and Corps

Altoona Pa
May 1884

Robt. N. Wicolling

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1789

1789

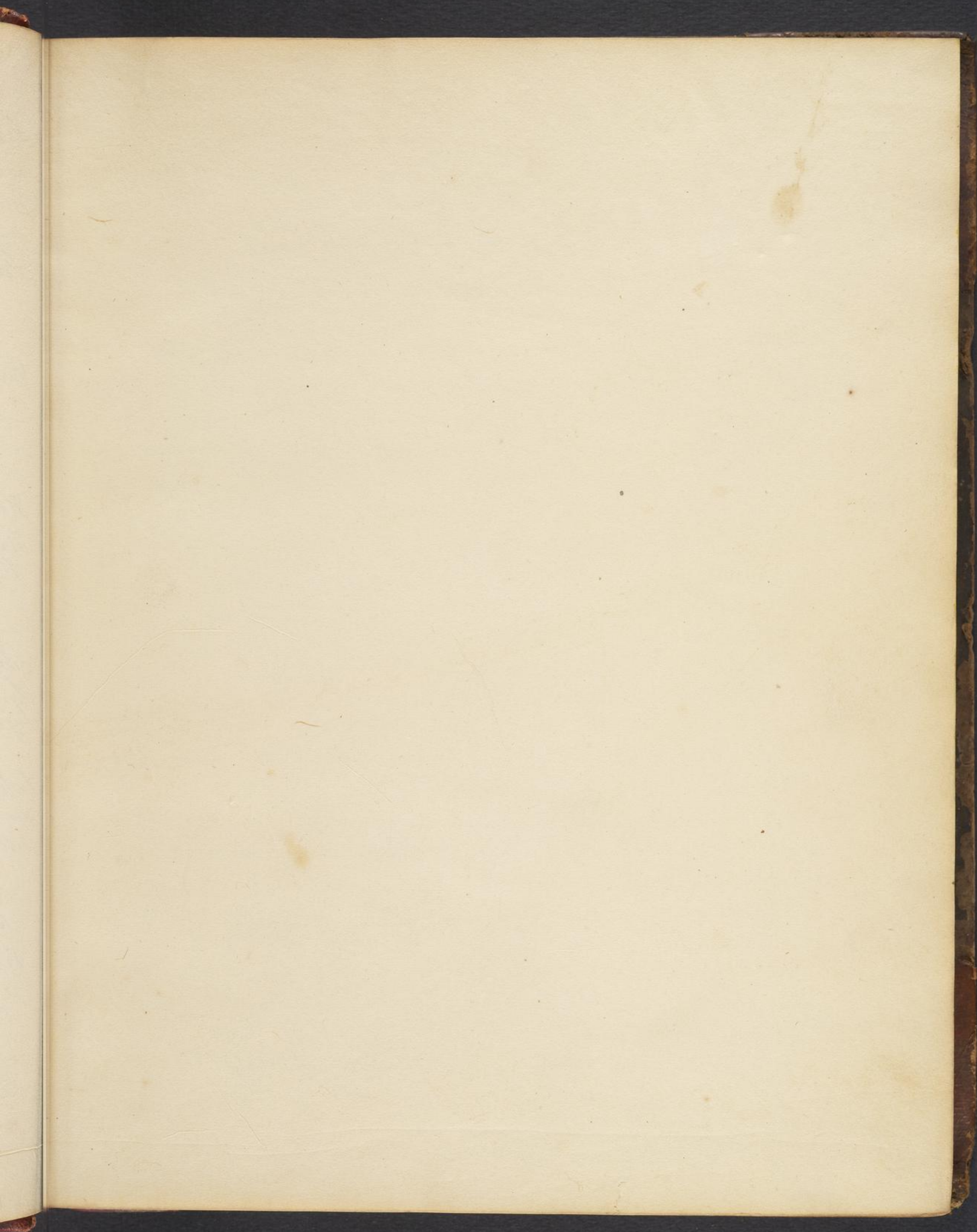
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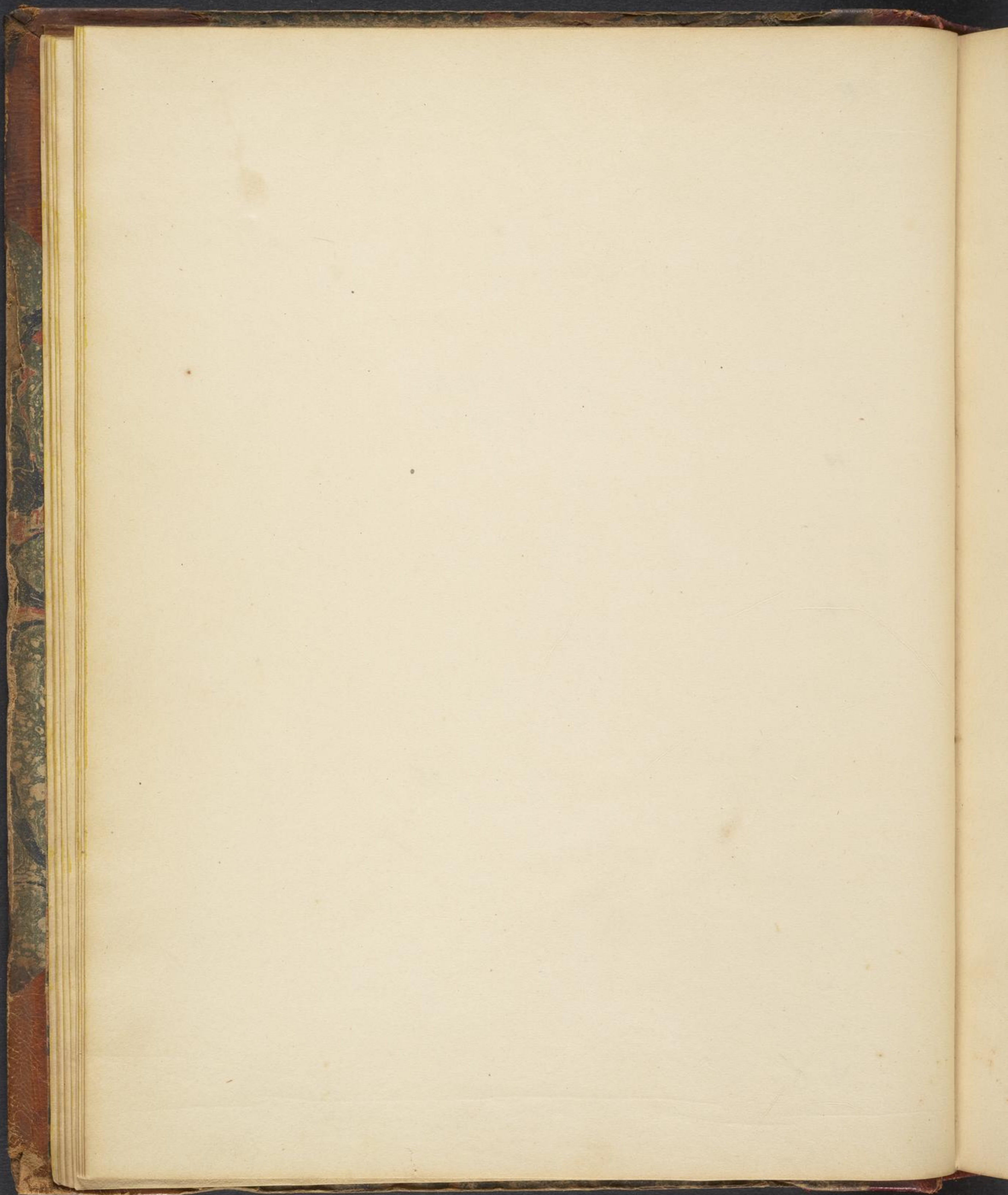
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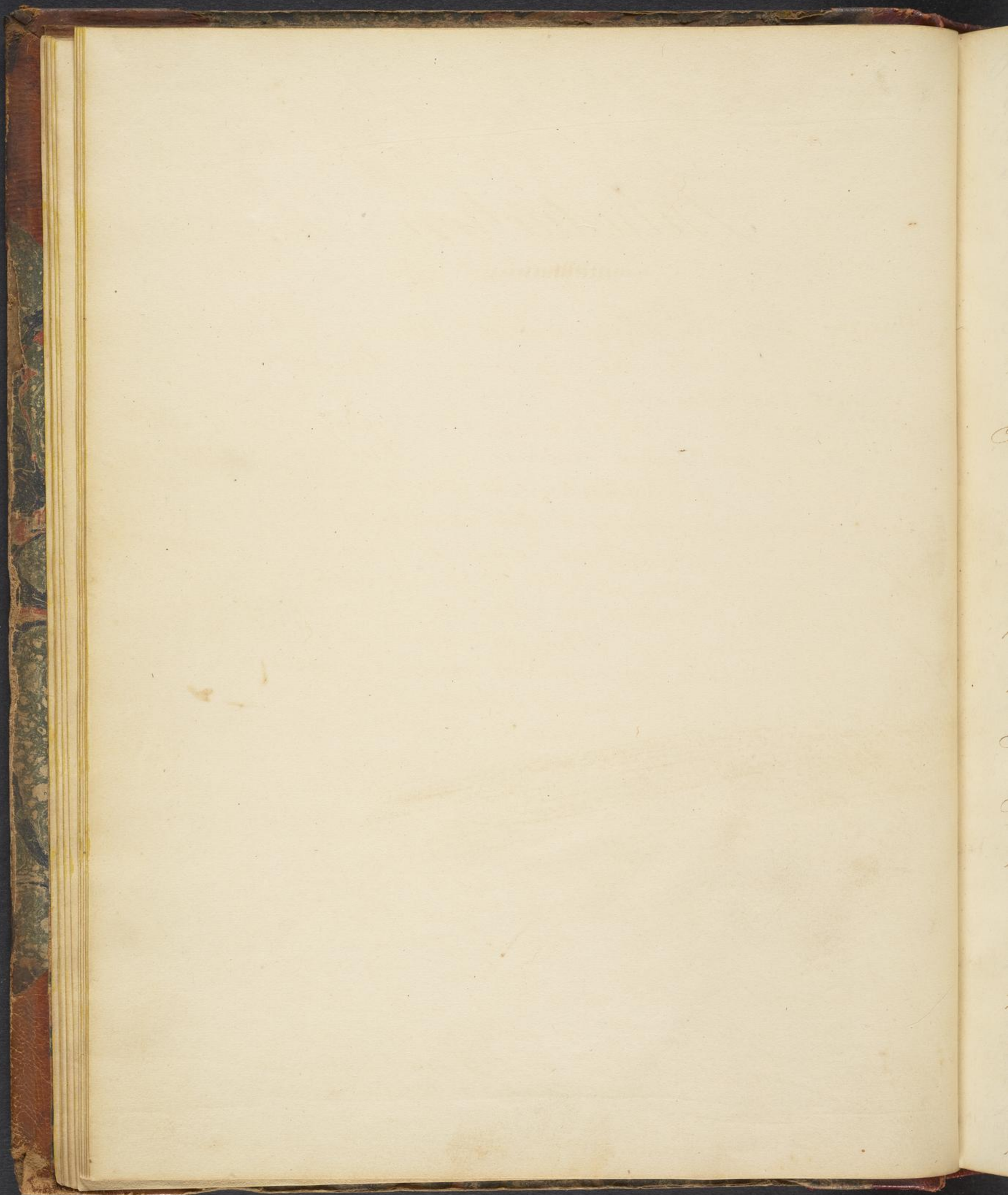
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Introduction

The purpose of this book is to provide a comprehensive overview of the history and development of the field. It is intended for students and researchers alike, and is designed to be both informative and accessible. The book is divided into several sections, each of which covers a different aspect of the field. The first section, "The Origins of the Field," discusses the early history of the field and the key figures who have shaped it. The second section, "The Development of the Field," discusses the growth of the field over time and the various factors that have influenced its development. The third section, "The Current State of the Field," discusses the current state of the field and the challenges it faces. The fourth section, "The Future of the Field," discusses the potential future of the field and the opportunities that it offers. The book is written in a clear and concise style, and is intended to be both informative and accessible. It is hoped that this book will provide a valuable resource for students and researchers alike.



Introduction Nov^r 14th 1816

Surgery is that branch of medical science which teaches us the proper exhibition of remedies by instruments and external applications.

A brief sketch of the history of Surgery will be the subject of the present lecture. - Surgery is inseparably connected with Anatomy for it is impossible to adjust with accuracy a machine that is disordered with which we are totally unacquainted & unless our investigations have extended to the minutiae of compound of the animal machine how shall we be able to mend a disordered wheel of that machine. - Surgical skill is of the greatest importance since we cannot evade the accidents to which the whole race of man is exposed.

The ancients were not strangers to this branch of science for the Egyptians & Grecians were both famous for their skill.

The former must have acquired considerable knowledge of the science of medicine in order to aid their operations in embalming the dead & the latter were driven to the inquiry from the loss of soldiers by wounds in the army. - In the time of Plato their seems to have been very important discoveries made in the science of medicine. Minos it is said died of a wound in the vena Cava. Plato supposed that the heart was the centre of the system from whence were sent off in various directions a great number of canals which by their divisions & subdivisions & ramifications extended to every part of the body & that these canals were furnished with a fluid which was the

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Pulchrum of life. This was written by him 2000 years before the discovery of the circulation by Harvey. — We do not find that Anatomical dissections were employed in any pathological investigation at a more remote period than the time of Democritus who it is said made the first dissections. — The art of Venesection was invented by Potelins who performed it on the daughter of a Nobleman who had fallen from the top of a building & was taken up apparently lifeless he opened a vein in each arm, the blood gushed out & she revived; the consequence was the complete restoration of the young Lady & the bestowment of her hand to the happy Potelins. A sharp fragment of a stone or shell was the instrument used by the operator. —

460 years before the Christian era Hippocrates flourished & Aesculapius 260 years after him. In his time surgery was greatly improved, some very important operations were performed in Egypt among which were trepanning tapping opening the Trachea, the reduction of dislocations & fractures. Sythotomy was also performed with safety, in all cases of small calculi which was made to pass through a canula in the urethra; the stone was directed to the mouth of the canula, by the introduction of the finger in ano. In the year 150 Galen explained the difference between the arteries & veins, both alike containing blood but the veins the most air. — Professors are entitled to but little credit for discoveries made in modern times. The Arabians had 4 methods of stopping hemorrhages. 1st complete division of the vessels 2nd & 3^d astringent & Styptic & 4th Ligatures. After the art of printing was discovered surgical science made great progress. In 1666 Louis XIV established a society in his dominions which published the same year a very valuable volume of transactions. — Towards the close of the 18th century Fluster Cheselden

And Thom. Hunter were conspicuous but Mr John
Hunter exceeded all their researches he maintained his
doctrine of animal adhesion through fire & smoke
as it were which is as important as that great one
established by the famous Harvey viz the circula-
-tion of the blood.

The plan of transferring the blood of a young
animal into an old person for the purpose of ob-
-taining longevity as has been done is absurd no
good has resulted from it. — It is certain that the
mode of treating wounds by contact with a hare's co-
-dy as was the practice in former times, is worse than
the disease, in the first place; dressing to the bottom as
it was called was performed by filling the wound to
the bottom with lint or some such substance or clo-
-sing it up by suture or otherwise in which case the
wounds made by dressing were generally ^{worse} than the
original cut the second intention was mundification
& concoction & 4th incarnation. — These cruel remedies
were the means of bringing odium & reproach on
the profession. — In tracing the history of this science
we find the pages of surgical authors filled with
absurdity, witchcraft & a treatise of largely Superstition
prevails through every civilized nation. In En-
-gland a powder was vended, declared to be a spe-
-cific for all wounds made with instruments the
powder was to be applied to the instrument with
which the wound was made. — The method of cure
in surgical cases down to the time of Flacius and
Cheselden was extremely complex & cruel, Simplicity
is now considered the most important ingredient
in the preparation of surgical applications. — Surgeons
of former times bold & ignorant placed their depend-
-ance on the powers of nature to effect a cure and
by these means generally lost their patients, but
in modern practice the trepan is used successfully

Definition

origin of name

And suppurative aneurisms are cured with ease. - The introduction of firearms in war presented a wide field of investigation to the surgeon & was a source of much disturbance but now gun-shot wounds appear not so formidable but that the skillful surgeon may easily heal them. Operations on the carotid & Iliac arteries have been performed in England and repeated with success in America. -

The subjects which follow are of the last importance when War is begun no one can tell when it will end & when you consider the accidents to which the soldier is exposed you cannot pursue too eagerly the path which shall lead you to the perfect knowledge of the mode of relieving his distresses. - You may all be tried and your skill proved ere long at the tribunal of your brother countrymen in the field of battle pursue then with unremitting diligence the road to medical knowledge that you may thereby render a lasting and important service to your countrymen.

Of Inflammation

There is perhaps nothing more necessary to be understood by the surgeon than the principals of inflammation for as there is a certain degree of it which is necessary to restore diseased parts to their healthy state so there are likewise other grades which are incapable of performing this restoration, of course therefore a knowledge of its principles & also of the appearances which it has in performing the restoration of diseased parts is absolutely necessary for the surgeon. The term Inflammation was given to this process from the supposition of an accumulation of fire in the part inflamed, but this idea is altogether incorrect the term however answers very well to express our idea of that particular operation. - It may or may not be connected with

Topics in
Inflammation

Healthy Inflammation

Causes

another disease; an instance of the former we see in
scrophula & syphilis &c. Improper treatment is frequ-
-ently the result of ignorance of the symptoms which
violent inflammation leaves behind it. for instance I
saw a case of a sprained ankle which after infl-
-ammation abated was very weak medical assistance
was called & the physician prescribed tonics which
threw the patient into a hectic fever.

An inflamed part performing its functions with difficu-
-lty; an instance of this we see in the eye which
when violently inflamed loses the power of vision.

Inflammation is of three kinds adhesive, suppurative
& ulcerative, I shall only treat of the healthy kinds
in this lecture which are the two first. Inflammation is not

necessarily a disease, because disease always tends to a dissolution
of the parts, but inflammation is sometimes necessary for its
restoration. — In the healthy state it is of a pale red
colour accompanied with a preternatural sensation, if
seated in the skin it is very often preceded by itch-
-ing, heat & a dull throbbing pain accompanying it. —

Weakness is never a disease though it is often a pre-
-disposing cause to it. The causes of inflammation are

chemical ~~and~~ mechanical & fever. of the first are heat,
cold, acrid substances, caustics &c. of the second are

wounds, bruises, pressure &c. Inflammation does not
always immediately follow the application of its cause,

twenty four hours sometimes intervening. A cause
that will at one time excite an inflammation of one

kind, will at another time in the same constitution
excite a different one. Different remote causes have

been supposed to produce different kinds of infl-
-ammation but I think the variety is owing to
difference of the situation of the affected part for

the same remote causes will produce erysipelas in
the face and common inflammation in other parts

Inflammation depends greatly on habit. for example

First Stage

11
A person unaccustomed to work, will blister his hands
very soon & a person unaccustomed to a high degree
of heat will bear a much greater diminution of it
without injury than one daily exposed to it. If sup-
-puration follows inflammation it is called critical ab-
-scess, the healthy kinds of inflammation are adhesive & sup-
-purative.

Adhesive inflammation is an increased action of the
vessels causing an extravasation of the coagulating
lymph. It begins in the small vessels and for the
most part spreads from the point in which it begins.
Suppurative inflammation is an increased action of
the vessels secreting pus. In adhesive inflammation
the matter which forms the union is coagulating
lymph; the red globules are likewise throughout
but are again absorbed. When inflammation sup-
-purates in a particular part, that part receives
a more copious flow of blood through it than a
healthy one, in consequence of the increased action
of the blood vessels. That there is an increased action is
proven by the parts being of a pale red colour. If
there was a diseased action it would be of a purple
colour. - The diameters of the vessels are likewise
increased which is proven by Dr. Hunter's experiments
on the ears of a rabbit. The swelling in inflammation
arises both from the thickening of the coats of the
vessels & the extravasation of lymph. - The swelling
is greatest at the point where the inflammation commences.
The pain is produced by the spasm or con-
-vulsive action of the vessels much in the same
manner as it is produced in cramp or tetanus,
or by distention. When inflammation precedes
gangrene it is of a purple colour. The heat of
an inflamed part is considerably increased but
never arises higher than the source of circu-
-lation. The lymph in adhesive inflammation

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Becomes in time vascular and may be injected off Hunter
proved that coagulable lymph was thrown out by observing
that the matter found on the surface of inflamed cavities
corresponded in every particular with the lymph of
the blood when divested of its serum & globules. The
coagulable lymph is changed in passing through the
vessels for if it be thrown out on the internal surface
of a vein it refuses to mix with the coagulating mass.
The effects of adhesive inflammation on the constitution
vary according to the degree of violence & the part aff-
ected: thus it is attended with little inconvenience when
situated in the skin but in the sheath of a tendon or
periosteum it occasions great pain & symptomatic fever
if the inflammation be great the pulse is full hard &
quick & the blood drawn is ropy. This inflammation often
terminates spontaneously in which case it is termed
spontaneous resolution or adhesion.

A man 36 years of age received a bruise on the leg by
the fall of a bar of iron upon it, six days before
inflammation came on I was called to see him his
body was all in a tremor, his extremities were cold
and clammy his pulse small & quick & his strength
much diminished. He was cured by a dose of Calomel
& the application of it to the part affected. I have
seen death induced by the inflammation of lacerated w-
ounds of the joints Tumors frequently occur in the
throat called schirous tonsils & in the breast of women
they are produced by the effect of simple inflammation
are occasioned by the extravasated lymph not being
absorbed when the inflammatory action ceases, they
also occur in glandular parts & form what is
called schirous tumor. By this it appears
that there is no cancerous tendency in the blood
Inflammation terminates also by the secretion of
serum. If there be a secretion of any fluid
inflamed the inflammation does not run so high

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Thus blisters which run well are much easier cured¹⁵⁻
than those that do not & it is probable that infla-
-lamation of the brain terminates in what is called
Hydrocephalus internus & that of the breast in
Hydrothorax - Local inflammations are frequently
removed by fever. Hemorrhage sometimes terminates
inflammation; a remarkable instance of inflammation of
the eye which resisted bloodletting and other remedies
was cured by the accidental breaking of an artery
of the eyelid which bled considerably. I have seen
an incurable case of fistula in ano from its not
bleeding in the inflammatory state.
If inflammation be not stopped by some of these
means it proceeds to suppuration. When inflammation
happens from accident & has not proceeded too far
we should generally attempt resolution. But there
are cases in which it should not be attempted
as in very warm weather lest we induce Tetanus
a generous diet and cordial drinks should rather
be recommended. if it be occasioned by a
constitutional disease as fever or if it is owing
to the removal of any worse disease we should
suffer it to proceed to suppuration. When it
occurs in any important part it should always
be attempted to be resolved. Some inflammation
is necessary for the restoration of the parts

Treatment. To effect a cure in the first place the
remote cause should be removed 2nd reduce the
inflammatory action that the parts may take
on a natural one. This is effected by two
kinds of remedies constitutional and local. The
constitutional ones are low diet, bleeding, purging,
neutral salts, antimonials diluents Camphor
- waters &c. Low diet tends to empty the blood-
vessels. Bloodletting is the most powerfull reme-
-dy

remedy in inflammation since inflamed vessels are
under the necessity of contracting to adapt themselves
to the column of blood; and as contraction is a very dif-
ferent action from inflammation it allows the parts to
take on a natural action by diverting them from the
inflammatory one. Venesection acts in two ways first
it removes the stimulus of distention and 2^d it lessens
the volume of blood itself. The third remedy is purging
this also acts by lessening the action of the vessels except
when they produce nausea then they act sympathet-
ically. Though we are sometimes obliged to decline
it on the account of the inconvenience attending it.
Nitre, Sal ammoniac, Glauber Salts, have been advised
and antimonials have sometimes been joined with
them. Mercury sometimes acts powerfully in the cure
of inflammation. Rest is highly serviceable and the
whole body should be kept quite still and the
room of a moderate temperature.

The local remedies are 1st bleeding by scarification
leeches and cups. if a fever be caused by inflammation
general bleeding should be premised 2^d Cold
this should only be used when the heat of the part
is very considerable, and should never be carried
so far as to become disagreeable to the patient else
it proves injurious by acting as a stimulus 3rd
Vinegar, Sal ammoniac preparations of lead with
or without Laudanum and Laudanum alone 4th
Poultices. these are either simple or medical sim-
ple as bread & milk, the flax seed poultice &c.
The medicated are the simple poultices mixed
with the medicine above mentioned 5th Blisters
these are of very great use applied directly over
or in the vicinity of the inflamed part espec-
ially in punctured wounds. they should be
used when we are fearful of too great evacuations
they produce resolution by the evacuation of

serum. Blisters may be of use when we are 19
fearful of tetanus.

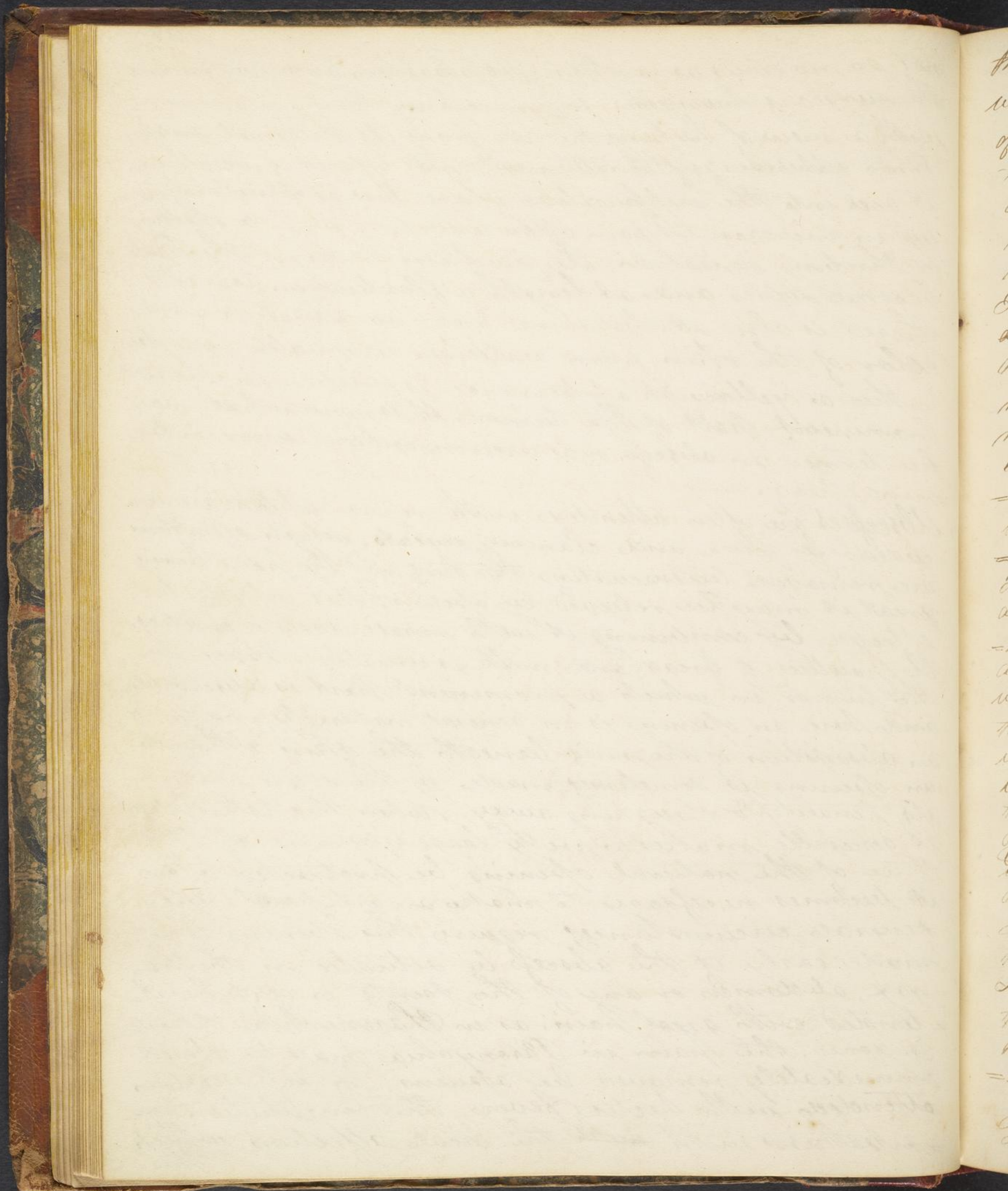
24. Of the good effects of adhesive Inflammation. They are instan-
ced first in the healing of wounds 2nd in abscesses; the cells
of the contiguous cellular membrane are united by it
which prevents the pus escaping from the abscess and
so stops the further progress of inflammation 3rd Cysts
are formed for the lodgment of extraneous matter as
balls, shot, glass &c; When I attempted to extract some
shot lodged just under the skin I was surprised at
the tenacity with which they were held in those cysts
4th In the abscesses of the liver or any other viscus, the pus
in its passage to the surface of the body is prevented
from being effused into the cavity of the abdomen by
the adhesions of the affected part of the viscus to the
parietes of the abdomen.

If inflammation be not stopped by some of these means it pro-
ceeds to suppuration here the inflammation acts by secre-
ting pus and the suppuration which takes place is a
third remedy or mode of cure. The contact of air to
internal surfaces has been supposed to produce inf-
lamation. I once heard a professor say that he thought
that the action of the air occasioned inflammation of the
chest in a case where the Pleura had been punctured
by a red hot iron; notwithstanding the violence of the
act he imputed the inflammation to the action of
the air. I once made an incision through the Pl-
-eura of a cat and passed a tube into one side of
the chest & filled it with air I then withdrew the tu-
-be and closed up the wound; in this situation it
remained three days without any remarkable alterat-
-ion as it took its food & played as usual, it was then
killed and upon examination no possible difference
could be observed between the two sides. I
mention this to show that the effects of air are

21

not so noxious as is often supposed, and to prevent the surgeon's hurrying too much in closing up a wound with a view of keeping the air from its internal surface. When adhesive inflammation will not admit of resolution it goes into the suppurative stage this is characterized by an increase of pain often attending with a shooting or throbbing sensation the swelling enlarges the parts become softer and at length a fluctuation is felt, there is also at the same time an alteration in the color of the skin from a deeper to a paler red also rather a yellowish appearance is visible in the most prominent part of the tumor. It is now what may be termed an abscess or a circumscribed tumor containing pus.

22 Abscesses are often attended with rigors which are succeeded by fever and clammy sweats, which symptoms are removed by evacuating the pus. If the pain be very great it may be relieved by opium; this will be best effected by combining it with small doses of emetics. A poultice of bread and milk is usually applied to the tumor in which a prominent part is observable and here an opening is in general naturally made, by an absorption of the parts beneath the skin although an opening is sometimes made by the skin losing its tenacity, & sloughing away. When this takes place it generally makes a pretty large opening. If the time of the natural opening be protracted too long it becomes necessary to make an artificial one several circumstances require this opening to be made early if the abscess be situated on the thorax, abdomen or any of the joints or if it be attended with great pain, as in Paronychia it should be done. The pain in Paronychia may be almost immediately removed by opium. In suppuration attended with hectic fever, the constitution sympathizes with the local affection which the



the power of the system is unable to overcome, as ²³
when the fever is brought on by ulcers or affections
of the tendons or ligaments, or of any of the vital parts.
The symptoms of hectic are great lassitude, weakness,
loss of appetite, cold night sweats, aptness to sweat on
very little exertion; the pulse small, quick, and frequent
urine high coloured; it frequently terminates in Diarrhoea.
The process of suppuration sometimes suddenly stops
and the matter already formed is absorbed. This is a
happy termination and of course ^{it is} very desirable to find
medicines which will produce this effect; accordingly
many medicines have been employed for this purpose,
Emetics and nauseating doses have been known to pro-
-duce it. The matter formed in buboes has been known
to be absorbed by vomiting produced at sea. I have ob-
-served bleeding blistering, and purging to be of service.
Hectic fever instead of being induced by suppuration
as formerly supposed, is sometimes cured by its pro-
-motion: an instance of this kind occurred in an
amputation of a leg; when the patient was affected
with hectic from a diseased joint, which ceased after
the operation when the surface and quantity of matter
were increased and hectic has been cured by issues
which increase the quantity of pus; convincing proofs
that hectic fever is not the consequence of absorption
of pus. If suppuration proceeds to fluctuation so that
it may be distinctly felt: the opening should be
assisted by making an incision into the abscess.
It is very customary to apply plasters of different
kinds to assist in breaking tumors containing pus,
such as resins, saccharine substances &c, I scarce any of
these do good though that applied next preceding
the eruption generally obtaining the credit of accel-
-erating the discharge, but I believe they act merely
by softening the parts. Abscesses on the Cranium
should never be left to open of themselves; ectis.

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such as impede respiration should be immediately
opened; the tonsils should be opened when they are
so enlarged by suppuration as to impede respiration. —

Matter does not always absorb towards the skin (id est) in
tumors containing pus absorption does not always take
place between it and the external surface of the body
but sometimes makes its way more internally; hence
the necessity for opening abscesses where they form
over joints or any cavity. I knew a patient affected
with a periodical pain in the head which was after-
wards found to be owing to an abscess in the calf
of the leg, upon opening which the pain ceased. I
have twice known all the symptoms of nervous fever
produced by a small abscess over the abdominal
ring; in the first case the patient died owing to an
ignorance of the cause of the disease, in the second
the abscess was opened and the patient recovered. I
have known a similar instance of one situated in
the axilla; Abscesses in the face should be opened soon
to prevent the scar that would ensue by leaving it
to open spontaneously, as it would absorb much more
of the parts. —

5 There are two ways of opening abscesses by incision &
producing an eschar by means of caustic. The first should
be preferred unless in cases where the timidity of
the patient prevents it, in which case a thin layer
of Lapis Sæpticus may be applied for ten minutes; the
part it touches will soon slough off and give vent
for the matter or pus. After the pus is discharged
it is to be treated in the same manner as an ul-
cer; Pus is a light straw coloured fluid of the
consistence of cream, containing a number of glo-
ules it does not coagulate if exposed to heat but
evaporates to dryness, it does not readily putrify
is specifically heavier than water and easily miscible
with it, it is not corrosive, is said to be of a sweetish

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Sweetish taste and is distinguished from the other fluids of the body by its containing peculiar globules that are suspended in a fluid coagulable only by heat. Ammoniac, which is not the case, with any other animal fluids. Mr. Hunter observed that it was a secretion of the vessels taking on the nature of glands and that the globules are not formed, till after it is thrown out of the vessels. When practicable suppuration should be obviated by resolution.

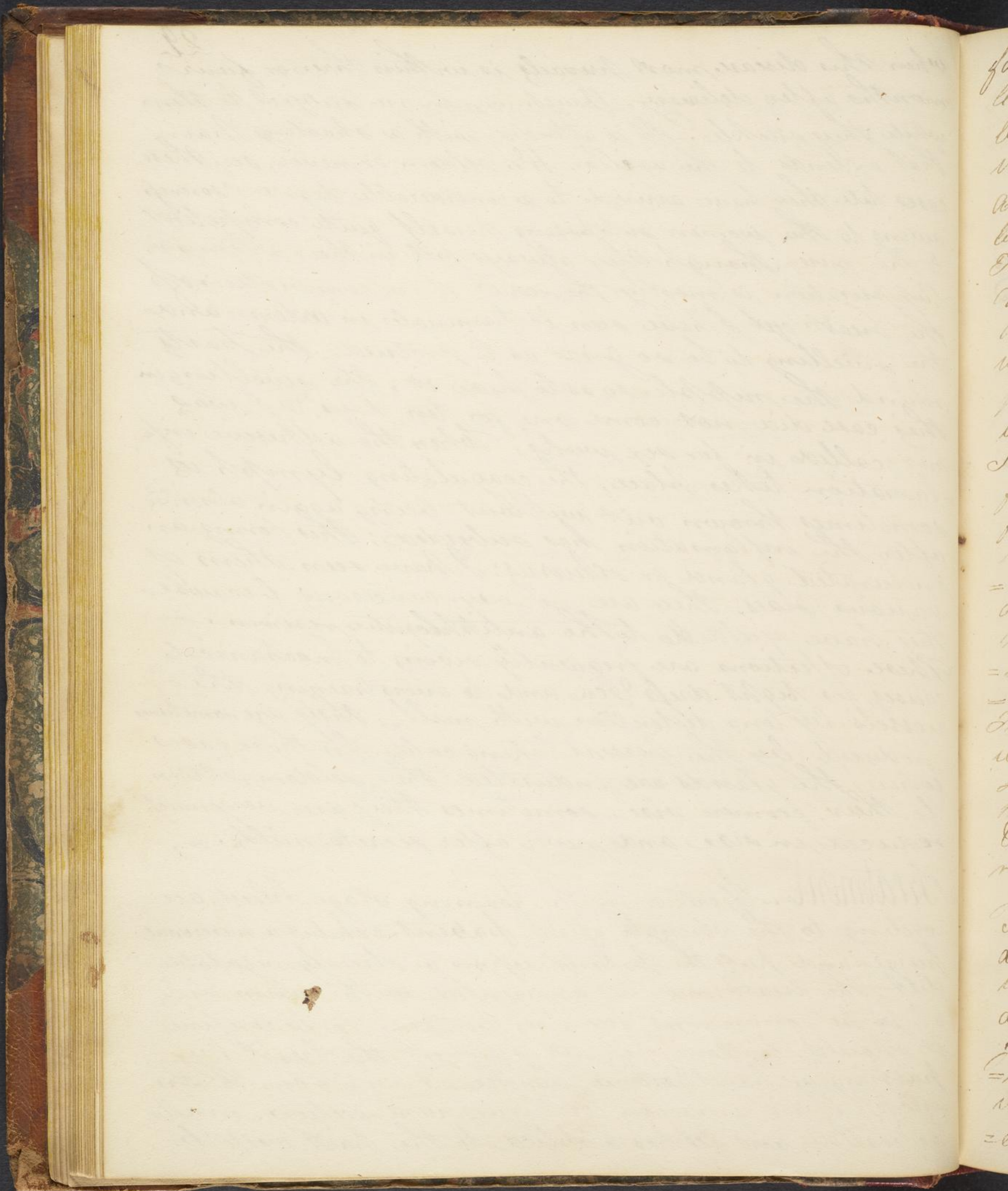
Ulcerative Inflammation takes place mostly after suppuration; and suppuration takes place after the extraction of dead ulceration. In ulcerative inflammation a part is always lost, which is removed by absorption. It commences mostly after the suppurative stage, but has been known to precede it, as in cases of chancre, and some particular cases of irritation, or where sudden death of a part has taken place. Pressure has produced this stage without suppuration. That part of the body ulcerates soonest, which is nearest the surface. The absorption of the part in ulceration is always attended with pain and inflammation which is called soreness. But this is not a necessary symptom of ulceration, for we find that scrophulous ulcers are not painful when they proceed slowly, but when rapid, they are attended with great pain.

I shall now say a few words of abscesses and first of Mammary Abscesses. Remarkable instances of ulceration attended with inflammation, occurs in the Mammary Abscesses of women. These may either be seated in the glandular or cellular part; It seldom occupies the whole of the breast, and if a portion of the glandular part be diseased, the secretion of milk is commonly diminished but if the whole is affected, the secretion is entirely suppressed. They are mostly preceded by a chilly fit accompanied with pain of the affected part and there is sometimes more than one tumor felt. The time

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when this disease most prevails is within three or four months after delivery. Though women are subject to them while they suckle. It is attended with a shooting pain that extends to the axilla. We seldom or never see these cases till they have arrived to a considerable degree of soreness owing to the women supposing herself quite competent to the cure though they always fall in their attempts. Suppuration is mostly the result of inflammation of the breast yet I have seen it terminate in oedema and the swelling to be so great as to protrude the part round the nipple so as to hide it; the swelling in this case did not come on for ten days, & I was not called in for six weeks. When the adhesive inflammation takes place, the coagulating lymph is sometimes thrown out without being again absorbed after the inflammation has subsided; this forms an indurated gland or schirrus: I have seen them of various sizes; they are no ways cancerous because they have yielded to the antiphlogistic regimen. These affections are frequently owing to mechanical causes, as tight dress &c. and to overstraining the vessels by long distention with milk: they are sometimes produced by the persons taking cold. In those cases where the glands are indurated they seldom return to their former size, sometimes they are very much reduced in size and never after secrete milk.

1441 Treatment. If called in the forming stage, bleed according to the strength of the patient, exhibit a mercurial purge: and put the patient upon a strictly vegetable diet; the breast may be augmented with warm aile, if it be convenient for the patient to be confined. It should be done; if not support the breast by passing a handkerchief under it and round the neck: if inflammation continues, vene-section may be repeated; and leeches applied to the part will be



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fauna of great utility; Bread & Milk poultices, with
lead-water are highly serviceable, after evacuations have
been premised. If these do not give relief and the
inflammation continues a blister should be applied.
A great variety of plaisters have been recommended
but I believe they are all of a doubtful tendency.
The blister is not so painful as might be expected.
Women who had not enjoyed rest for many nights
before have been known to sleep soundly while it
was operating; but be sure to keep up the evacuation
per ano. An application of Sal Ammoniac & vinegar
is frequently advised it is however of no use. If
Suppuration seldom takes place if properly treated
from the commencement of the disease, but sometimes
from delay in calling in a physician or from his
want of judgment, it does occur. If it becomes neces-
-sary to open the abscess it is sometimes advised to
do it freely by making a large incision, but I
have succeeded in making a puncture into the ab-
-scess, and introducing a bougie which should be en-
-larged every time it is taken out, to keep it open.
The bougie must be drawn occasionally to void the
within collected fluid or pus. In the case of Adoma
I applied Sal Ammoniac, mercurial ointments & c. to
the parts and depleted generally, by bleeding purging
&c but without any effect; the application of a blister
removed the complaint. I removed an indurated
gland, attended with slow fever, which was afterwards
cured by bleeding and the antiphlogistic regimen, by blistering
and afterwards dressing with mercurial ointment
where the schirous was as large as the fist. Mercurial
ointment is good in resolving tumors. Weakness of the
-parts (especially those of the hip) without any appa-
-rent cause are generally a species of inflammation
which may be cured by purges if timely taken. In-
-flamings are occasioned by a secretion or throwing

* When sinuses are formed in the breast Mr. Keay advises to cut down to the bottom of every one if there be several - There is no doubt of this being a successful mode yet is one of the most painful operations to which the body is subject, & it should not be resorted to till the other means have failed - In several cases that I have had I have passed a Seton through them with ultimate success - A Bovie is also used with very great success - it should be withdrawn every 2 or 3 hours to evacuate the pus that may form, & gradually enlarging the Bovie as occasion may require 1817

* Blister applied over the part affected is a successful remedy also inflaming the surface with caustic,

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off of coagulable lymph into the cells of the cellular
membranes. Vessels which are inflamed carry a coagula-
-ting lymph, which adheres to their internal coat
and becomes vascular. *

Paronychia, is a violent inflammation, occurring mostly at
the ends of the fingers, which frequently ends in suppuration.
it is attended with trifling or excruciating pain according
to the seat of the disease. It may be divided into 3 kinds
1st when seated in the cutis vera 2nd in the adipose membrane
under the skin; here the pain is much greater, matter is
frequently effused under the nail and the whole finger
becomes swelled & painful 3rd in the sheath of a tendon &
1st of the periosteum. In the last case the pain is very great
though without swelling at first. When it occurs in the ad-
-ipose membrane, there is most danger of mortification. The
-matter formed formed in the two last species of Paronychia
has sometimes passed along the course of the tendon un-
-der the ligaments of the wrist & formed a tumor at the
lower part of the forearm; the bone often becomes
carious and sometimes the tendon slough away; I have
seen mortification from this cause, it is a difficult matter
to point out the causes of whitlow; I have once seen it
produced by the bite of a squirrel.

Treatment, but little attention is necessary to be
paid to the first kind; it may be opened & dressed with
Unguentum citrinum, or simple cerate containing Saccha-
-rum Saturni. When it is situated deeper than the skin
make a small puncture down to it and the blood should
be suffered to flow untill it ceases spontaneously & if
any part of the bone be decayed it ought to be taken
away as soon as possible; the dressings may be either
dry lint or a poultice; boiling water has likewise been
advised in Paronychia, I believe when it is of any
use it acts merely as a rubefacient. * Nothing else how-
ever than opening the part is necessary. When opening

* Onichia Maligna - is a disease attacking the ends of the fingers under the nail. It is attended with considerable inflammation. An application of equal parts of Corrosive Sublimated White Vitriol ~~with~~ a dossil of lint wet with Tinct Myrrh has been attended with ultimate success. It is a harsh remedy but has effected a cure when all other remedies have failed. -
When a tumor arises under the nail of the toe & produces an inversion of the nail the same remedy has been successfully used.

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Paronychia of the fingers lay it on the table & with a scalpel, make an incision to the bone, if it be not sufficiently large it will not succeed, and the remedy will fall into disuse. If it be seated in the skin clip it off to the bottom and let the matter run off. When it is seated in the joint it has been recommended to treat the disease with mercury, but I have tried it ~~unsuccessfully~~ and think the only remedy is amputation which should be performed as soon as practicable. if matter has travelled up the wrist it should be let out at the most protruding part. Sometimes the orifice if small grows up with fungus and prevents its healing; for removing these excrescences, escharotics will be found tedious & often in vain; it should be done by enlarging the incision *

Psoas Abscess is seated in the cellular membrane ~~on~~ the psoas muscle, where matter is deposited in a cist of the adipose membrane. Any of the remote causes of inflammation may produce this disease. In its progress to the surface of the body, it generally follows downwards along the course of the bone; it causes pain at first in the lumbar region, but sometimes goes off without further months causing any pain. The thigh on the side of affected is weak; the patient cannot well stand he generally bends the body to relax the muscles on the side affected, he cannot easily rotate the thigh & is affected with rigor. It sometimes happens that months elapse before any one mark of it can be seen. Its general situation is anteriorly, but it is sometimes found on the loins, on the upper or lower part of the thigh & I have seen it on the buttocks. The integuments of the abscess are not discoloured; the tumor is tense when standing upright, when lying down soft & more placid. If pressure be made on the abdomen it will be flattened & more protruded in the thigh and vice versa laughing & coughing render it more tense,

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The fluctuation may easily be felt. These abscesses never open forward into the cavity of the abdomen, but have sometimes destroyed the sides of the contiguous vessels & thereby produce fatal hemorrhage. If they continue a long time they may occasion a caries of the vertebrae. When it protrudes at the upper part of the thigh it appears like Hemisoma; & it has sometimes been confounded with fistula in Ano.

Treatment. if we are called to see the patient early in the disease, we must cause the patient to lie on his back keep him at rest, and avoid all animal food; Bleeding, purging, scarifications on the back & leeches are useful. a small blister should be applied to the upper part of the back, and issues on the loins. — When the tumor is formed externally it has been disputed whether the abscess should be opened or not, & some are afraid to make an opening into the cavity; but where it is long in opening it puts the patient's life in danger if it be left to open itself. Mr. Hunter has observed that all cavities will inflame, if opened unless they unite by the first intention, and that the inflammation would attack every side of the cavity which is the cause of all the bad symptoms that follow. Mr. Abernethy taking the idea from Mr. Hunter (probably) has proposed to open it so that the sides of the wound may unite by the first intention; he has proposed to perform the operation with a lancet, the puncture to be made in the longitudinal direction of the fibres, first to make an incision through the skin and then to push the lancet obliquely (viz. leaning to one side) through into the abscess, by which means we make a valvular opening. We should use no probes, nor any thing to ascertain the depth of the sinus, because they would irritate the part; when the matter is by the discharge, bring the edges together with the *ipelas*.

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adhesive plaster; after the matter is discharged a few times in this way, it may be opened with a lancet freely without any danger as the sides of the cavity will be brought together and so closed as to become inflamed. This is the best method of treating this abscess; I have tried this way myself although I have never been able to succeed in effecting a cure, because all the cases I have seen have been attended with a caries of the vertebra. However the puncture does not always unite by the first intention & when this is the case the inflammation which was spoken of before & which is the fatal cause comes on. (a case related) Besides the inflammation before spoken of there are some others which we will now consider & first

Erysipelas. This is an inflammation of the cutis verae it sometimes begins on the forearm & spreads over the whole body, it is sometimes preceded by shivering which is succeeded by a hot fit; the skin is sometimes of a light yellow or dark color; if you press it with your fingers the color disappears but on removing the pressure the color returns; the pain is of a burning kind; the inflammation is often much diffused, frequently spreading in one part whilst it subsides in another, if situated in the face it is attended with itching. Erysipelatous inflammation differs from the adhesive in this that in the latter coagulating lymph is thrown out whereas in the former serum is discharged, frequently in the cells which form blisters on the surface; sometimes the serum escapes into the cellular membrane, forming a tumor which feels like gangrene. Suppuration sometimes supervenes, running from cell to cell in the adipose membrane causing death. When mortification takes place in the cellular membrane, it is discharged in flakes like wet tow, and is very offensive. This is mostly the case when it is situated about the arm. Erysipelas

* When from its being seated on the face a blister is objected to I have used one part of Liquido Laudanum to two parts of water as a local application. - I have lately attended three patients with this disease, it was situated on the face, they made use of the following preparation viz 3 pieces of Elicampane 1 handfull of sweet fern 1 pint of new milk 1 Gill of cream, Boil & then cool - this was used with good success. - 1817

generally terminates in about ten or twelve days.

Causes The remote causes are so similar to those that excite common inflammation that I will not enumerate them; it sometimes comes on spontaneously or without any apparent cause.

Treatment. In England bark is the cure. The treatment here is much the same as for common inflammation. I once saw two cases of erysipelas in one house. both of them was very low, in one all evacuations were abstained from, the patient recovered with difficulty. The other was bled & purged 5 or 6 times & recovered with facility. It may generally be removed by attending to the antiphlogistic regimen, before suppuration takes place. but when suppuration supervenes, it must be opened early to prevent its escape into the cellular membrane. Poullices before suppuration takes place is improper. Rye flour sprinkled on the part is very useful & affords ease. The application of a blister in such a way that it shall be partly on the sound and partly on the inflamed part is of great service*. When the part begins to heal an excretion of the cuticle like bran is a favorable symptom.

Edema exists in skin though it may be deeper seated. In inflammation water is sometimes evacuated it is probably the same with adhesive inflammation. originally taking place in parts disposed to dropsy. It is attended with a burning pain.

Treatment. The usual application is brandy or bread & milk poultice mixed with it or with saccharum Saturni which is more effectual than any thing else.

BURNS The morbid effects produced by the application of heat differ according to the intensity of the application and the time of its continuance. The effects are 1st When the degree of heat is low a redness only of the part affected 2nd Vesications causing a separation of the cuticle attended with an effusion of serum 3rd the death of the part

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forming an eschar. The heat of a burning coal, or of any of the molten metals will produce this effect. Sometimes the bones are discharged from these causes and it frequently terminates in death. When the life of a part only is destroyed the patient does not feel any very great pain, after the first effects are over for 3 or 4 days when the inflammatory process of sloughing takes place for the restoration of the affected part. I saw a little boy who undertook to walk the edge of a caldron, which was full of very hot water in a soap manufactory; his foot slipped and he plunged into the midst of it. he was wet nearly two thirds over and his clothes keeping the heat to the part a considerable time he was very much burned. When I first saw him his pulse was scarcely perceptible his extremities cold & a heavy drowsiness prevailed: he was very restless and kept constantly changing his position: he did not speak except when asked a question & then he answered very rationally; & when interrogated respecting his feelings he constantly answered that he felt no pain; He died in about six hours. When these symptoms are produced by fire the patient seldom if ever recovers. Burns affect old people most, though they prove fatal at times to all ages. A deep burn if it be of small extent or of broad but little is but a small injury, but if it be of great extent though very superficial it is extremely dangerous. When burns happen on the head they sometimes occasion inflammation of the dura matter. Burns occasioned by any of the molten metals appear of no serious consequence at first, but frequently after some time the skin and vessels slough off & leave the bones bare. hectic fever ensues and the patient dies. Burns occurring over large joints frequently occasion alarming symptoms hectic fever comes on and amputation is absolutely necessary for the recovery of the patient. I consider inflammation resulting from burns differing from all others 1st the pain is of a different

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and from any other being of a burning kind 2nd are
not being capable of resolution and causing ulceration of
the parts beneath, which throw up fungus that is very
difficultly suppressed 3rd the cicatrices formed from ul-
cerations resulting from burns have a disposition to
contract much more than other cicatrices, not the result
of burns, causing thereby a much greater deformity
of the part affected 4th they are cured by totally
different remedies as volatile alkali, Sp Turpentine &c.

R. R. Wistling

Treatment. The remedies employed in cases of burns
are very numerous they are either general, or local. Most
authors recommend depleting remedies in burns in-
discriminately; but they should not be used unless
fever and inflammation supervene. If the burn be
extensive and great weakness attend, the patient may be
supported by bark, wine and even brandy and water. He
should have any nourishing aliment he may desire; if
the extremities be cold, apply sinapisms; if from this in-
-vigorating plan of treatment, inflammation and fever sh-
-ould supervene, bloodletting and a more spare diet
would be necessary. —

The local remedies generally advised are cold water, soap
sudg, Dr H. Carl in a small treatise recommends ice above
all other remedies, vinegar and water is a good application
lime water & oil form a crust like a cuticle. & the
common people use potatoes scraped. — of late very
stimulating applications have been used, as volatile
salts, spirits of Turpentine &c. Satturallly Mr Hunter has
used sp. of Turpentine combined with basilicon and
I have used it with very good success in many cases
but it should not extend to the sound part as it
would excite inflammation there as well as pain and
swelling of the part. These remedies counteract the effects
of the burn, while the cold water &c only acts as palliat-
-ives relieving the pain and soothing the parts for

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a while, we are often not called to cases of burns for several days after they have happened & a number of applications have been tried. I have applied the turpentine & basilicon when not called for 3 or 4 days after the accident. In one case of a burn of a child the turpentine & Basilicon was applied but owing to the superstition of the parents, together with the clamors of old women it was omitted 3 or 4 days without my knowledge. The child became worse & a fungus arose over the surface of the burn. I was sent for again & the part was sprinkled with burnt allum the turpentine & basilicon were applied which soon cured the patient. In the case of a patient who was burned with gun-powder, this medicine was used, the pain entirely left him in about 4 hours after the application of the ointment; presently after he complained of a pain in the little finger which upon examination appeared not to have any of the ointment upon it & upon its application to the part the pain quietly ceased the inflammation subsided & he was cured. Spirits of Turpentine is one of the best applications in these cases.

Inflamed parts, when in contact are very apt to grow together, so that we should be extremely careful to keep the dressings between the inflamed surfaces, which lie in contact with each other whilst they are suppurating & granulating otherwise the parts will adhere by the union of the granulations. The fingers or other members when they are much burnt should be kept extended with a splint in order to prevent the contraction of the limb. I knew a case where the fingers of one hand in consequence of a severe burn adhered to each other and the ends of the fingers grew fast to the palm of the hand which evinces the necessity of keeping the dressings between such inflamed surfaces & keeping the parts extended by the use of splints. I knew a scald upon the parts of generation of a young man which for want of proper care to keep the parts separate whilst healing all united together.

* When Subsultus Tensionum follows a burn of the extremities
a splint is to be applied which effectually relieves the symptoms
the state of the system to be attended to also. —

the penis adhering to the scrotum & the scrotum to the thigh: The young man did not like such a confused mass and applied to Mr Hunter for relief who undertook the case & was fortunate enough to succeed, by very careful dissection in liberating about two inches to the no small satisfaction of the patient. - Burnt parts sometimes form a ligature round the limb, stopping the circulation of the blood & thereby producing mortification: whenever this circumstance takes place the bands should be cut open *

Mortification is the certain destruction or death of any part. It is of 2 kinds 1st inflammatory, or that preceded by inflammation 2nd Debilitative, or that proceeding from languor. Of the first kind, the causes are violent contusions, the application of violent degrees of heat & cold &c. Of the 2nd The destruction of the circulation in the part either by pressure or by tying the principle artery: they both operate in the same way by cutting off the necessary supply of blood, & then a part loses its life by mortification, it first becomes purple, then livid & at last black. The cuticle soon separates from the part & continues so till the dead parts slough off. - In cases of violent inflammation, the evacuations should be promoted & opium given to relieve pain. - A small degree of inflammation is salutary - Intense cold if not severe enough to kill, produces first a paleness of the exposed part, which is succeeded by redness & is attended with a burning sensation & soreness of the part affected; if the cold is continued it loses its sensibility & at length dies. - Snow or fresh spring water should be applied to the part affected: after which the warmth of the part should be gradually to a comfortable state. - Mortification often comes on without any apparent cause. If mortification preceded by inflammation, there are two kinds, the first is when the inflammatory action is too great for the powers of the part to support; in the second there is something peculiar in the nature of the inflammation, so that the

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inflammatory action does not seem to produce its destruc-
 -ing effect by the degree of violence. Wine injected by a
 bungling operator into the cellular membrane (instead of the
 tunica vaginalis) of the scrotum for hydrocele, has produced
 inflammation & mortification of the whole cellular sub-
 -stance & bottom of the scrotum, which by being destroyed
 sloughed off & the whole cellular membrane came away
 with an intolerable fetor. The escape of urine into the
 cellular membrane has produced the same effect. ~

Mortification often takes place in the toes especially of old people
 it commences with pain & slight inflammation of a purple
 colour; vesications sometimes take place round its edges,
 but not always; the progress is, for the most part slow, but
 in some it is rapid & very painful. The upper part of
 the foot swells, & the cuticle becomes detached. I have
 known it arise from the prick of a knife in cutting
 corns. In the cure, opium is the best remedy; all stim-
 -ulating medicine, as spirits of Turpentine essential oil
 &c. should be avoided. Never make scarifications nor
 apply stimulants to assist in throwing off the slough, for
 when a mortification ceases, the parts will slough off with-
 -out any assistance. Blisters should never be applied to
 this kind of mortification, for whatever irritates or stim-
 -ulates the part, increases the disease. It has been ad-
 -vised to amputate but this should never be done while
 mortification is progressing lest it should attack the
 stump & the patient undergo much unnecessary pain.
 In the case of mortification of the foot which came on
 with a very offensive smell, I was induced to amputate
 it at the particular request of the patient; it was per-
 -formed a little above the ankle; the arteries were com-
 -pletely asphixia, so much so that I was obliged upon
 tying them up to mash their surfaces together with
 my thumb & finger, with a view to prevent haemor-
 -hage, a circumstance which often occurs in such
 cases. ~

T When nausea & a loathing of all kinds of food prevails
I have used the yolk of a raw egg in a little milk or water
~~entirely~~ ^{entirely} or longer with the greatest advantage
When much pain attends mortification opium is to be
given.

* corded wool answers a better purpose as it is more
elastic.

⑥ When mortification is not preceded by inflammation
Blisters are never to be used, as the parts to which
they are applied are apt to mortify. In such cases
the patient is to be treated by a corded dill & a light poultice
applied to the parts.

Pressure often occasions mortification in parts contiguous ⁵³ to the Os Sacrum, in persons who are long confined on their backs, from broken bones or other causes & is most commonly produced by inflammation. I have seen mortification produced in the arm by the pressure of the bed clothes. The symptoms of mortification are a burning sensation, a dark red color, disappearing upon pressure & returning slowly; a tumefaction takes place which readily receives the impression of the finger: small blisters containing a thin acid serum arises round the edges & as the disease advances the red globules are thrown out.

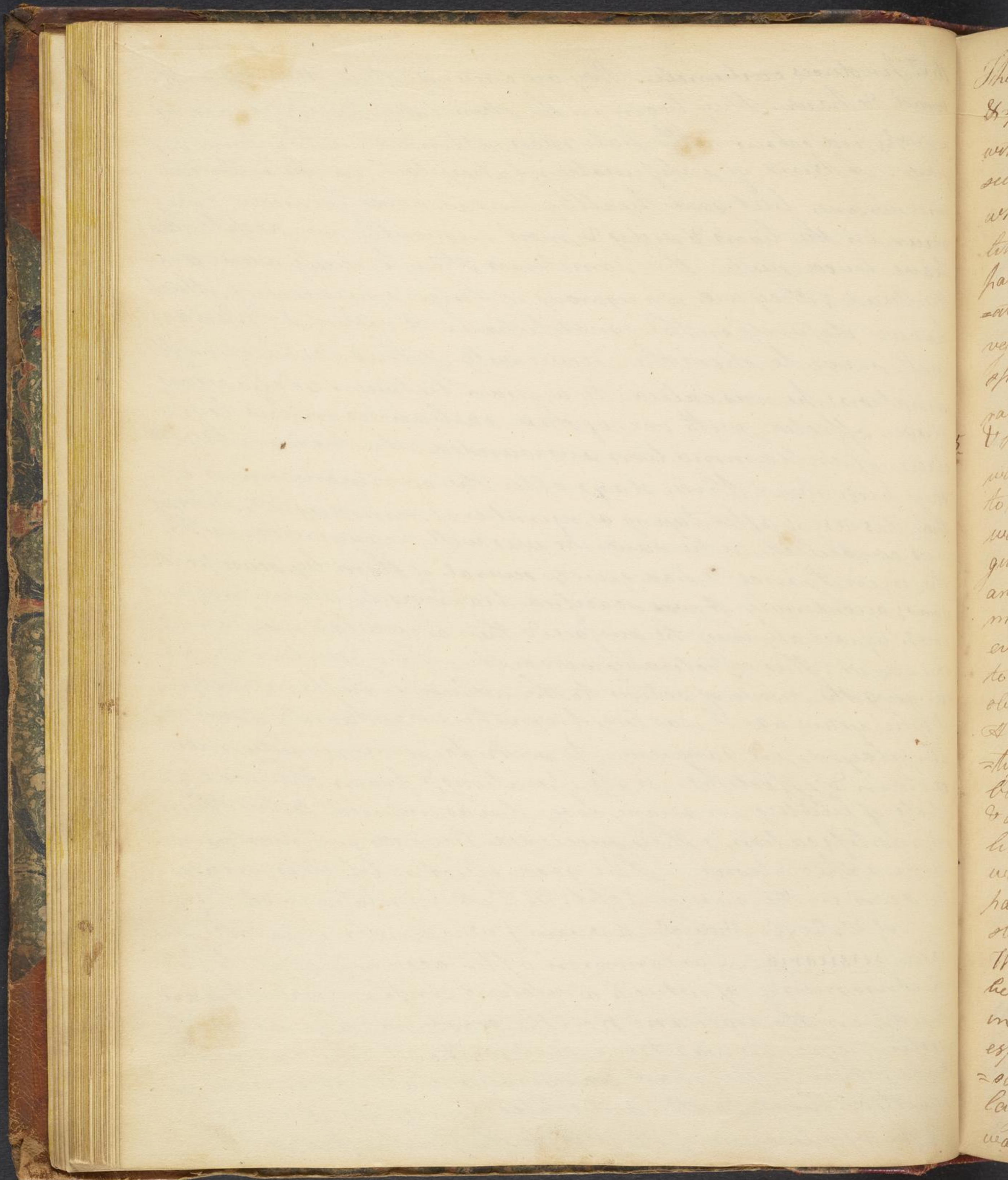
The remedies for mortification are general & local. The general remedies are, bloodletting if inflammation be present but if it proceed from languor or debility of the parts, then stimulating applications, as essential oils, cordials, scarifications, with opium, nourishing diet bark &c are to be employed. — If the patient be accustomed to the use of wine it may be continued, to a certain degree in every instance. The local remedies are blisters to the part affected: the charcoal poultice is highly serviceable to prevent the smell of the dead part. Where mortification ensues from erysipelas in the cutis vera & pus has made its way into the cellular membrane it should be laid open freely and treated with bread & milk poultices. In mortification of the leg pressure should be avoided, but the leg may be supported by pillows placed under it. * I have long been in the habit of using nitric acid, diluted with an equal quantity of water; it corrects the fætor, by stopping the putrefactive process: it may also stimulate the absorbents to a quicker action & cause them to separate the dead parts more readily: it should not, however, be applied too near the living parts or it will cicatrize them. — If the weather be very warm, maggots are apt to form in the dead parts, washing it with diluted acid will remove them. ☉

The second species is that peculiar kind of inflammation

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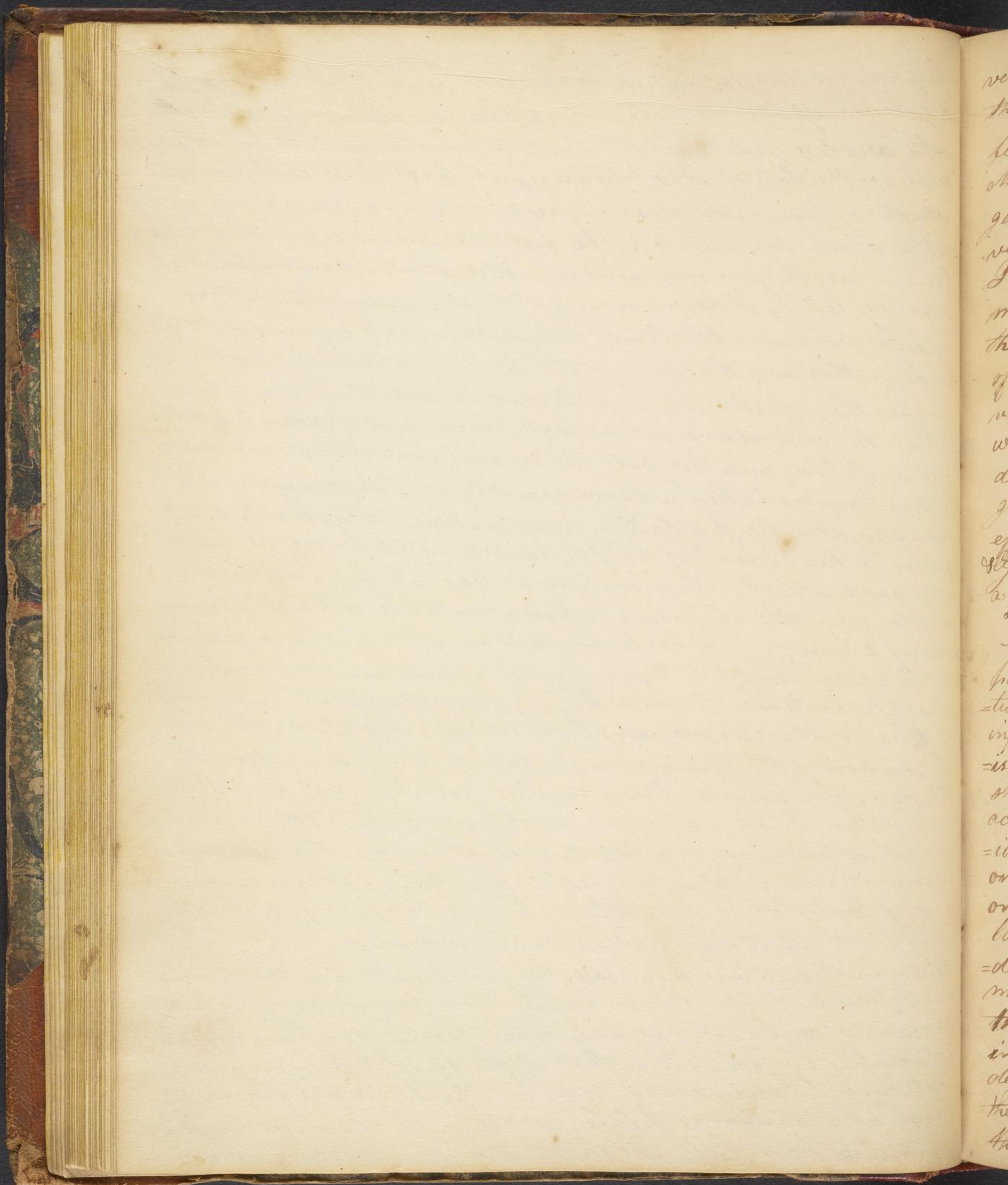
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that produces carbuncle. They are circumscribed tumors. 33
broad & hard. They begin in the skin like pimples, are of
a dusky red colour with pale edges, attended with a burning
pain. A kind of suppuration takes place in the cellular
membrane but good healthy pus is never formed. They
occur in the back & sides & most frequently in people who
have lived well: they sometimes though rarely occur on
the head; they are dangerous if large & numerous. Much
however depends on the constitution. A case of Dr Whistaz
will serve to show the peculiarity of this kind of infl-
-ammation: he was called to a man between 50 & 60 years
of age, affected with one of these carbuncles on his leg: a
circle of inflammation surrounded the tumor. The first
saw him about three days after the commencement of
the disease: after trying a number of remedies Dr Monger
was consulted, who said he was well acquainted with
them in France & had cured several of them by scarifica-
-tions; accordingly it was scarified transversely about 7 or 8
inches apart all over the surface & then a circular incision all
round it: this effectually cured it. - A operation by ch-
-anging the mode of action to the adhesive inflammation.
Some years ago I was led from the uncertainty of remedies
employed in gangrene, to seek for some remedy more
certain & effectual in its operation, & from the good ef-
-fects of blisters in many cases I was induced to try them
in mortification, & they succeeded beyond my most an-
-ticipated expectations. The good effect of blisters may
be seen in the case of Capt: R. - A - (related in vol page
of Dr. Cox's Medical Museum) who under mistake had
used persicaria, in a common after occurrence of life
in consequence of which a violent inflammation en-
-sued, in the regio ani & on the scrotum. The antiseptic
-gistic regimen was tried but without any benefit:
and when in the most dangerous state, after having
resisted bark & other antiseptic remedies it was cured
by the application of blisters to the part affected. -



The pain in mortification is caused by inflammation 37
& spasms of the vessels. A patient of mine was afflicted
with violent pain in the foot, a small, redish spot was
seen on the top of it, appearing at first, like ecchymosis
which afterwards disappeared & then came again a
little above the ankle. The patient now complained of great
pain when the foot was raised up, but, which was somewhat ab-
-ated by letting it down owing to the increased action of the
vessels; because the blood, filling the vessels overcame the
spasm that was the cause of the pain; & when the foot was
raised the vessels were emptied of the distending blood
& then the convulsive action took place. A charcoal poultice
was applied over his foot. His bowels were disordered owing
to his having taken a large quantity of Laudanum, which
was abated by his taking a purgative. The bark was
given to the extent of half a pound in 24 hours without
any good effect. Application of bark & brandy were
made over the stomach, & 5 grs of volatile alkali given
every 2 hours. The bark was now omitted as it was found
to be of no benefit. Some senna & manna were given to
obviate costiveness. But the mortification still increased.
A blister plaster was applied, which stopped the mor-
-tification & the livid colour passed to a red under the
blister. The fermenting charcoal poultice was omitted
& another blister applied just below the first on the
hind which was of a dark colour & cold. The dead part
was washed with nitric acid diluted with an equal
part of water. The mortified part after this gradually
sloughed off & the patient now recovered.

When mortification is caused by inflammation a blister should
be applied. Blisters have lately been found as effectual
in cases of carbuncle, as any other kind of inflammation
especially in relieving that distressing burning sen-
-sation. I lately cured one in the back of a Lady as
large as a common plate, which she compared to a
warming pan full of coals; the sensation was



very distressing. but as soon as the blister was applied 59
the mortification ceased, the dead parts sloughed in a
few days & the sore healed kindly.

Mr Hunters theory of mortification I believe is now
generally received; that is an increased action of the
vessels, beyond what the power of the part can bear; but
I am rather inclined to think that in every species of
mortification, there is something peculiar, leading to
the death of the part; something more than the violence
of the inflammatory action; for if it depended on the
violence of the action alone, the application of a blister
which is highly stimulating, ought to produce the
death of the part more quickly, by producing a still
greater increase of action; but on the contrary they
effect a cure, I believe by altering the disposition
by changing the mode of action from a diseased to
a healthy kind.

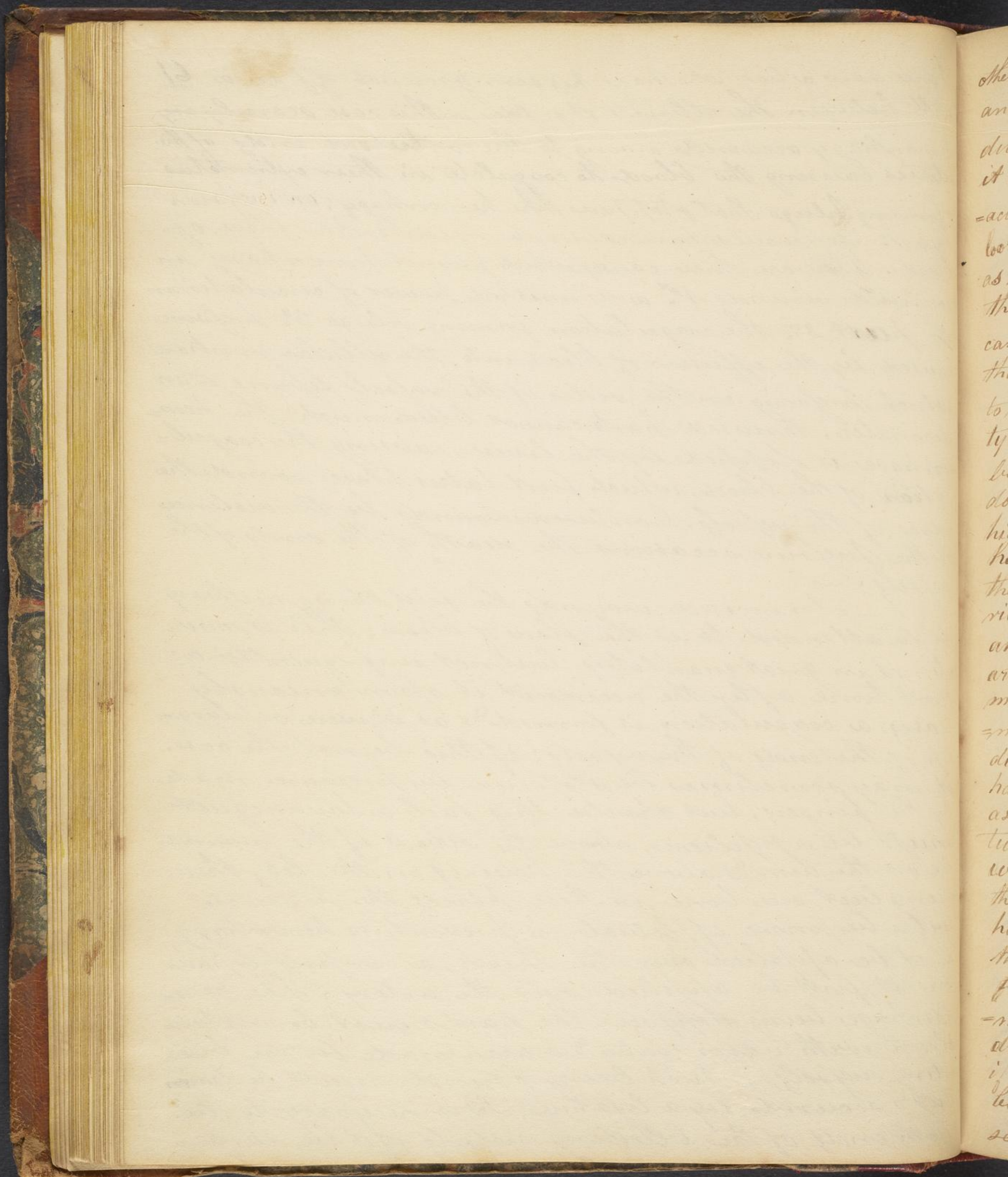
Wounds These may be defined a separation of external
parts by mechanical action; they differ according to the situa-
-tion of the part injured & the instrument by which the
injury is occasioned. There are two kinds of wounds inc-
-ised & contused. An incised wound is made by a clean
sharp cutting instrument. A contused wound is always
accompanied by a bruising of the soft parts & is div-
-ided into 3 kinds, lacerated, punctured, & Gun-Shot
or penetrating wounds; they are attended with a greater
or less effusion of blood; but in lacerated wounds
large vessels are often divided without any consi-
-derable hemorrhagy. Incised wounds bleed much
more than contused ones, because in the first case
there is nothing to prevent a flow of blood, but
in the latter the parts contused are killed, & the
dead matter at the ends of the arteries (caused by
the contusion) act as a stimulus to the coagulation of
the blood (A case from Cheselden's Anatomy)

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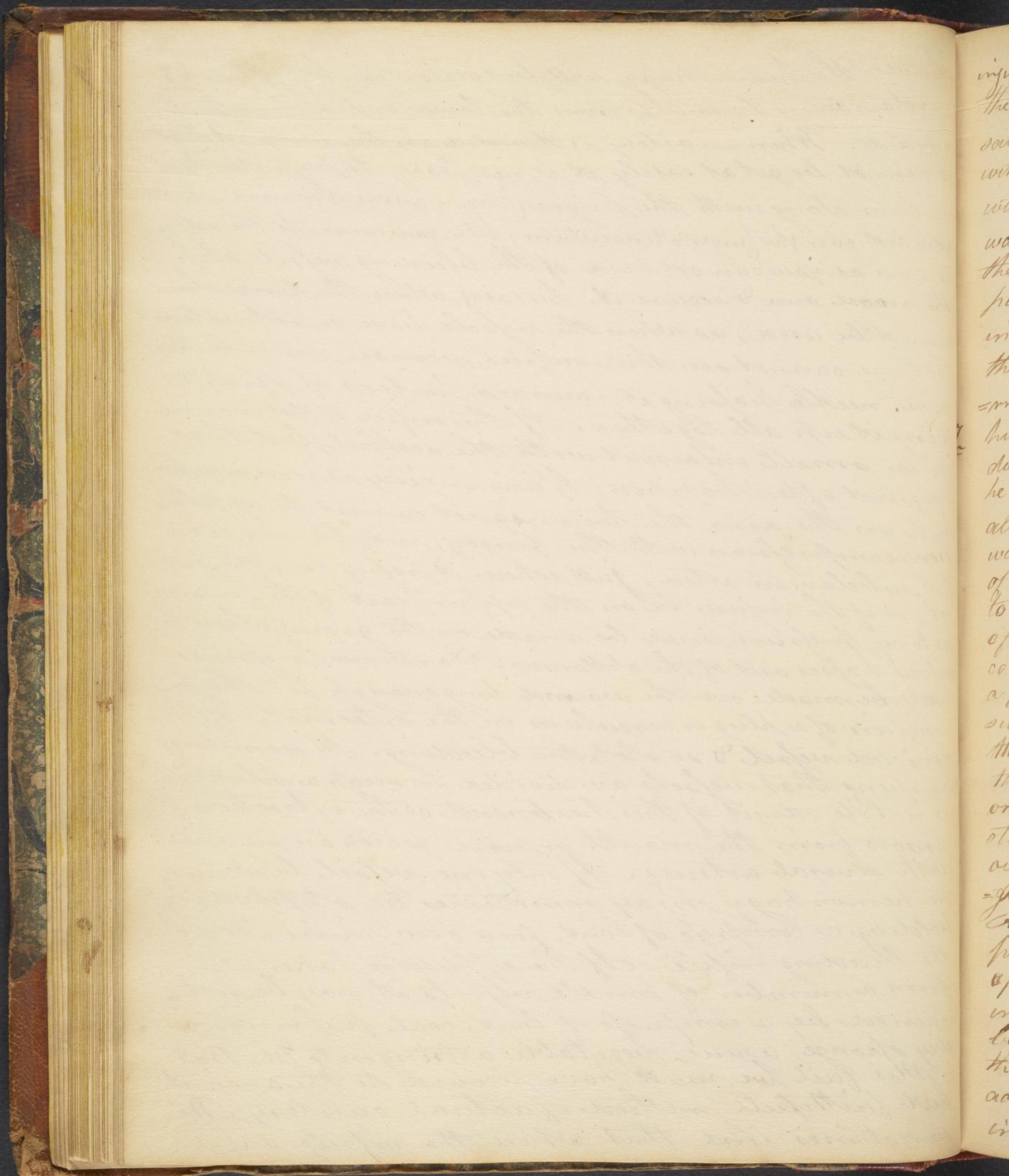
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I once saw a boy who had his arm ground off in a 61
mill between the elbow & shoulder, in this case scarcely any
hemorrhagy occurred owing to the contracted ends of the
arteries causing the blood to coagulate in their extremities,
& forming plugs that stopped the hemorrhagy: an incision
by a knife would have caused a much greater flow of
blood. There are three causes which prevent hemorrhagy in
contused wounds 1st a diminished power of circulation in
the part 2nd the coagulation forming plugs 3^d pressure
caused by the effusion of blood into the cellular membrane
which pressing on the sides of the vessels lessens their
diameter. Bruised parts cannot bleed much; the hem-
orrhage is stopped by the bruise, causing the coagul-
ation of the blood, which first takes place round the
edges of the vessels. Contused wounds by the violence
of the pressure occasions the death of the ends of the
vessels.

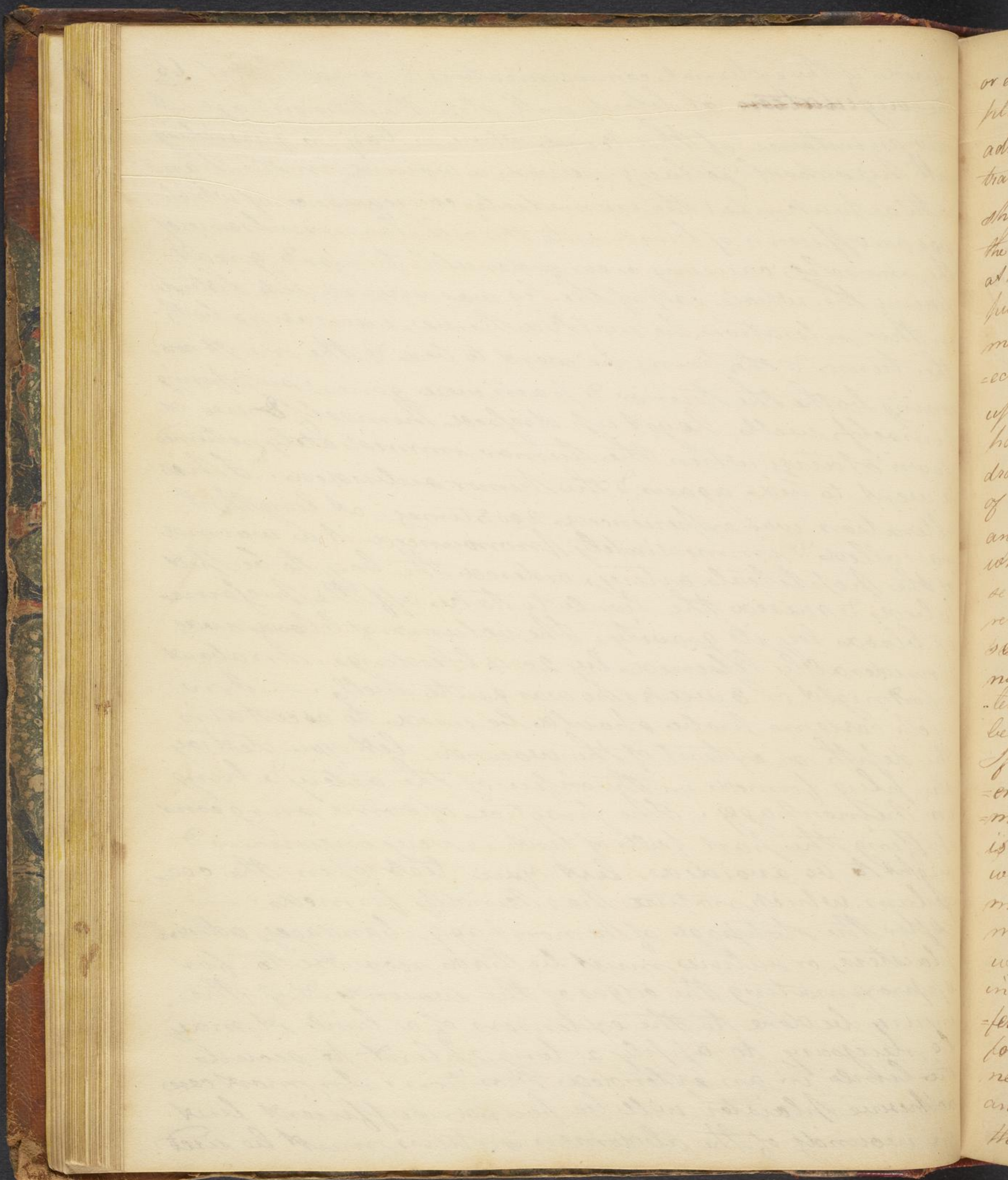
In incised wounds the first thing necessary
to be attended to is the flow of blood; this is some-
times in great quantities, but not unfrequently a
short time after the accident it spontaneously
ceases, a coagulation is formed & as it were a plugging
up of the ends of the vessels: if this be not the case
it may sometimes be stopped by pressure made
by the fingers; but should this fail a tourniquet
must be applied, above the elbow if the wound
be on the arm & above the knee if on the leg, there
being but one bone in these places the pressure
will be more effectual in preventing hemorrhagy
if it be applied over the thigh, a compress or pad
must first be applied over the artery; The hem-
orrhage being stopped, the part must be washed
clean with warm water & search made for the bleed-
ing vessels, which being found must be drawn
out & secured by a ligature; It is necessary to tie
both ends of the bleeding vessels if it be large



otherwise the hemorrhagy will be carried on by the 63
anastomosing branches from the lower ends of the vessels
divided. When an artery is divided in the body so that
it cannot be got at easily it is necessary to pass the ten-
-aculum along with the finger (having previously made a
loose knot over the finger & tenaculum) till you come to the artery
as soon as you can get hold of the bleeding vessel slip
the noose over & secure it. In cases where the tenaculum
cannot be used, as when the vessels have so retracted
that we cannot see their orifices, recourse must be had
to the needle passing it round a portion of flesh &
tying it up all together. If the orifice of the wound
be too small enlarge it with the scalpel, but this
does not often happen. If any injury is received very
high on the arm, the tourniquet cannot be applied,
here compression with the fingers, may be made on
the subclavian artery, just where it passes over the first
rib, or if the injury be on the upper part of the femoral
artery, pressure may be made on the groin; where the
artery passes out of the abdomen. Sometimes pressure
may be made over the wound long enough for the for-
-mation of a plug or coagulum in the extremity of the
divided vessel & so stop the bleeding. It sometimes
happens that vessels are divided in such a situation
as not to admit of this treatment, as the extraction of
tumors from the mouth or nose which are supplied
with several arteries. If only one vessel be wounded
the hemorrhagy may sometimes be stopped, by
holding a compress of lint, for a few minutes to
the bleeding orifice. If the effusion takes place
from a number of small vessels it may be rest-
-rained by a compress of lint, coal pulverized
dry sponge, agaric, vegetable astringents &c. But
if this fail we must have recourse to the ancient
but faithful method of actual cautery. We
sometimes find that where the vessels are



injured if the external communications be small, that ⁶⁵
the coagulation of blood will stop the hemorrhage. I
saw an instance of this kind where a boy in quarreling
with his school fellow, received a wound in the thigh
with a penknife: the immediate consequence of which
was an effusion of blood into the cellular membrane of
the muscles, causing a considerable tumor & great
pain: the whole calf of the leg was very much distended
in this situation, he walked home, increasing both
the tumor & the pain, he went to bed & the next morn-
-ning both the tumor & pain were gone: supposing
himself well, he got up dressed himself & went
down stairs, when the tumor immediately returned
he went to bed again & the tumor subsided. This
alteration was experienced 2 or 3 times; at length I
was called & immediately pronounced it a wound
of the popliteal artery, ordered the boy to be put
to bed & raised the limb to take off the pressure
of blood by its gravity. The volume of blood was
considerably lessened by 2 or 3 bleedings. In about
a fortnight or 3 weeks he was quite well. In
such cases no probe should be used to ascertain
the depth or extent of the wound, lest you destroy
the plug formed in the orifice of the artery & bring
on hemorrhage. The practice of some surgeons
stuffing the part full of lint is very injurious &
ought to be avoided, lest you tear open the coa-
-gulum which nature has kindly formed.
After the stoppage of hemorrhage, bandages, adhesive
plaisters, or sutures, must be had recourse to for
approximating the edges of the wound, & if the
injury be done to the extensors of a limb it may
be necessary to apply a long splint to secure
the limb in an extended position. In most cases
adhesive plaister will be found sufficient but
in wounds of the abdomen sutures must be used



or else the patient will be liable to hernia at that ⁶⁷
place. The coagulae should first be washed away & then the
adhesive plaster, spread on leather or linen, should be applied
transversely across the incision drawing the edges together. They
should be applied in such a manner as to favor the escape of
the blood, matter & pus, always taking care to leave an opening
at the most depending part of the wound, if possible for this
purpose, for if it be confined it may collect in the cellular
membrane & occasion abscesses. The strips should more espe-
cially, be separated when an artery or vein has been taken
up, so that the pus which is necessarily formed may
have a passage to escape. After the sides of the wound are
drawn together, & secured by the adhesive plaster, a portion
of lint, suitable to the size of the wound & spread with
any kind of cerate, may be applied to it, on the top of
which a compress of linen is to be applied & the whole
secured by a bandage. These dressings should not be
removed in less than 48 hours, in which time, I have
seen a union of the divided parts. Inflammation is
now only to be feared; & if it should run high blood-
letting must be used to the symptoms: purges may
be employed to prevent costiveness, low diet, rest &c.
If no inflammation be present & the patient be weak-
ened, he may take some animal food, as some infla-
mmation is necessary to cause an union. This practice
is recommendable except in wounds caused by glass
which should be left to suppurate as parts of the glass
may remain in the wound. Even transverse incisions
may be remedied by adhesive plaster, in most cases
where the limb is placed so as to cause no restraint
in bringing the edges together; this should always be pre-
ferred to stitching it up with a needle, and that
for two reasons 1st avoiding pain & 2^d every stitch of a
needle adds a new punctured wound to the injury,
and the thread mostly occasions a suppurations, by
the irritation it produces; but there are some parts

* Some cases where you are called after large hemorrhage in a wound, upon visiting the patient you find the hemorrhage has ceased, & the patient inclined to sleep. If the wound is in the vicinity of a large artery (as the femoral &c) you should cut down & take it up immediately, taking care to secure it at both ends to prevent hemorrhage

where sutures must be used as in the eye lids, nose, ear, & scrotum, abdomen & particular affecting of the scalp, where the parts are flexible so as not to admit of other treatment. * He should be careful in injuries of the scalp, not to draw the divided edges too much, for the purpose of bringing them together lest by overstretching the flap, we stop the circulation & so produce mortification of the loosened parts.

A punctured Wound, is a separation of the soft solids, communicating by a small opening externally. The irritation here is greater than in incised wounds. In cases of punctured wounds we should be very cautious in using a probe for investigating the extent of a wound since by that means we irritate the wound & destroy the adhesions that may have taken place & thereby retard the cure. If necessary it is better to make an incision to examine for any extraneous substance near the surface, than to use a probe or forceps for that purpose. This should be done soon after the accident, or deferred until suppuration has taken place. When matter has collected in a punctured wound & the extraneous body by which the injury was produced be not discharged, it then becomes very necessary to dilate it; & also where large vessels have been wounded & cannot be taken up without, or where the constitution suffers from them.

In July 1805 a lad in getting over a fence fell on a nail, which ran in the flesh toward the knee, about an inch upwards toward the joint; febrile symptoms came on & he complained of sickness in the epigastric region & pain in his neck & head his pulse was frequent & quick. The wound was opened and the pain was immediately translated to the wounded part; & excepting here he felt no pain in any part of his body. The wound was dressed with common poultice & healed kindly. I knew a Lady, who was thrown

* In punctured wounds after evacuations are used
sinapisms or blisters are sometimes necessary, —

into convulsions by puncturing her finger with a 71
needle & these convulsions continued for an hour & a half.
The puncture was then debated & the spasms went off
without returning. When puncture or contusions happens
during warm weather they should not be healed too
speedily, but suppuration of the parts should be pro-
moted; cordial diet & wine should be given as we thus
frequently prevent tetanus. *

Lacerated Wounds: are made with blunt instruments which
kill the flesh it separates. Anodynes combined with small
portions of emetics, so as to act as sudorifics, for the purpose of
composing the patient, should be given, & bread & milk pou-
ltices applied to the parts, till the dead portion comes away.
If inflammation accompanied with fever supervene, it
must be treated with the common remedies. If symptoms
of mortification come on, ease the patient with opiates &
prescribe, porter, wine, bark &c

Penetrating Wounds -

Are such as extend into the cavity of
the abdomen, thorax &c. When they happen in the thorax
they are attended with great danger, by causing inflame-
-ation in the cavity. If the lungs are wounded, or the
puncture be not very small, the air gets into the cavity,
the lungs contract & the patient respires with great dif-
-ficulty. If the lungs are wounded, the patient coughs up
blood & there is likewise an effusion into the cavity cau-
-sing great depression. Sometimes the vessels are injured
so that we have to take them up. If one of the inter-
-costal arteries be divided so that we cannot take it
up, it has been recommended to pass a thread round
the rib by means of a needle & secure it in that manner
by tying a ligature of lint over the artery. This I have
never performed & I believe it may be effected without
the danger of wounding the lungs or leaving part of the
thread in the thorax, by cutting down to it & securing it
by the common means. Ball & Shot occasion the worst

* In wounds of the thorax when the inflammation terminates by suppuration, frequently a large quantity of serous fluid is evacuated for some time afterwards, causing great uneasiness to the patient this effusion proceeds from the vessels of the Pleura

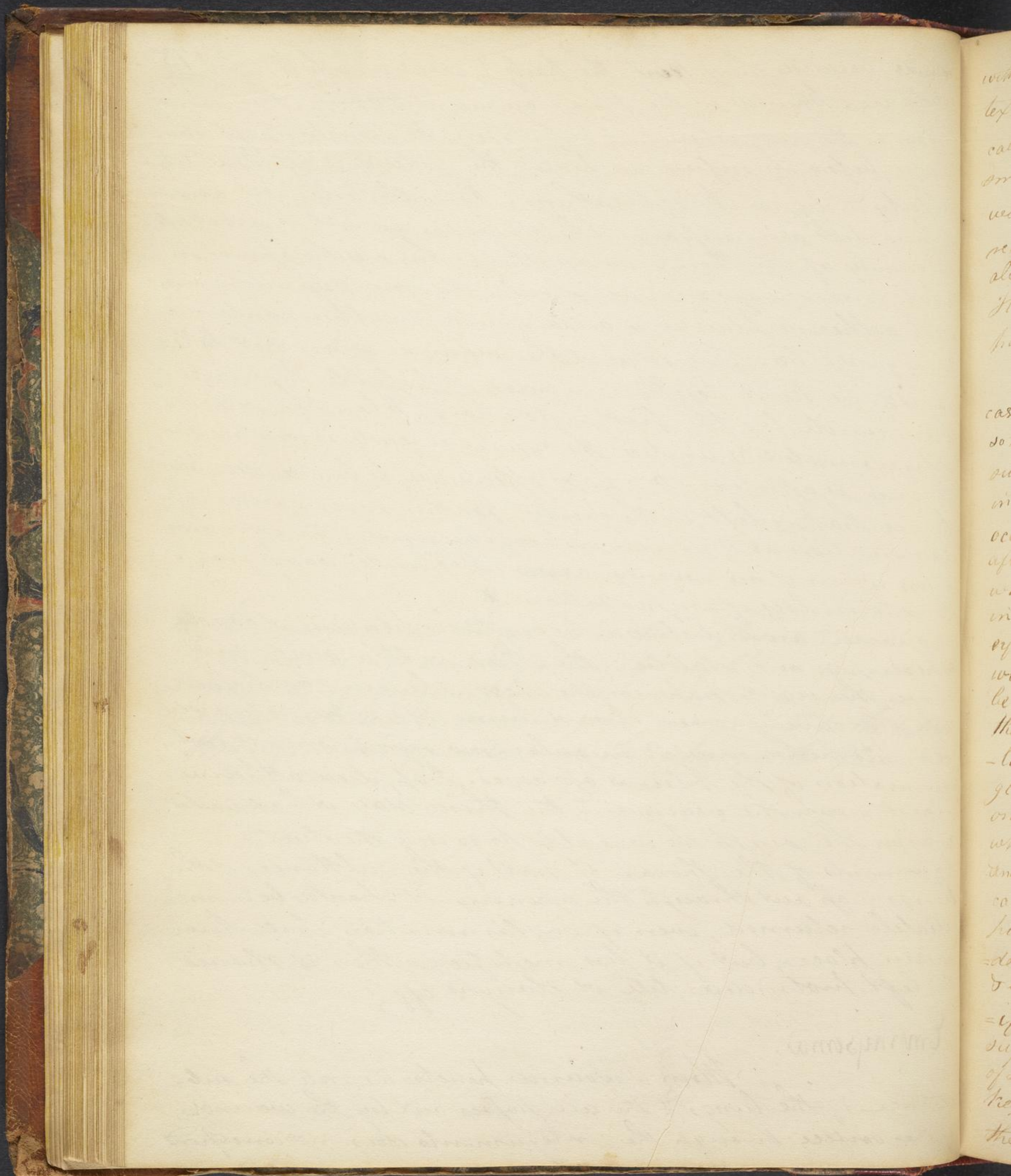
wounds, because they ~~tear~~ the part & occasion a loss of 73
substance: Wounds in the thorax are very distressing: they generally
inflamm the part where they enter & make sloughing off nec-
-essary, before the orifice can heal: the patient is affected with
anxiety & difficulty of breathing. Bloodletting, rest and
as low diet are necessary: The dressings are apt to draw into
the cavity of the thorax in breathing: this once happened in
a case under my care: we should therefore dress such wounds
with adhesive plaister, or bread & milk poultice confined
in a gauze bag. The edges of the wound when not killed
should be kept together, in order, if possible to make
them unite by the first intentions. When the edges are
approximated & united the cavity is rendered complete
the cure is effected. No bad effects are to be dreaded from
the air that is left in the cavity, for this never causes in-
-flammation as is proven in emphysema: the inflamma-
-tion when it supervenes, arises Mr Hunter says from
the stimulus of imperfections. *

A quarrel arose between two officers playing at cards
whereupon one stabbed the other, with a dirk: just
above the right pap in the chest: the air had passed
into the cavity when I saw him his extremities were
cold his pulse small & irregular, no symptoms of infl-
-ammation of the pleura appeared. I applied adhesive
plaister over the wound, & the third day it had united
and on the sixth he was able to go into the street.

In wounds of the thorax if part of the substance of the
lungs pass out through the opening it should be imme-
-diately returned, even if inflammation shall have
taken place, but if it has mortified then it should
be left protruded till it sloughs off.

Emphysema.

When a wound penetrates into the sub-
-stance of the lungs & the air passes out by the wound,
if the orifice through the integuments does not correspond



particular only & first of Wounds of the Face As there are many cases, in the treatment of which, sutures are always unnecessary so there are cases in which they should be used. The ancient surgeons used sutures in almost every cases of wounds, but in wounds of the face sutures should never be used as they occasion deformity by the marks of the stitches that remain after the wound is healed. I have seen a Lady one side of whose face was very handsome & the other as much deformed in consequence of this mode of treatment. In wounds of eye-lids unless the tarsus be divided, adhesive plaster will answer. When the suture is employed we should be very careful to avoid penetrating the tunica adnata the thread should only go through the skin of the eye-lid, for if the stitch should come in contact with the globe of the eye, it would continually irritate it & bring on inflammation of the globe itself. I have seen a case where a shot has entered the eye just at the edge of the sclerotic and penetrated to the crystalline lens. I have seen another case where the eye of a young Lady was punctured with a piece of glass: from whatever cause the eye may be wounded we should endeavor to remove all irritating causes, & by a well timed, bleeding, purging, low diet, blisters, scarification &c. with the use of a collyrium we may prevent suppuration. The best collyrium is an infusion of the pith of saffras in water or milk & water. the patient should lie kept in a dark room; if blindness occur, it is sometimes in the surgeons power to remedy it by an operation.

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Coxe's Medical Museum

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Of this however I shall say more hereafter. Generally, in wounds ⁷⁷
of the lip unaccompanied with a loss of substance, it will be
sufficient to bring the divided edges together with adhesive
plaster, but if a portion of the lip be lost the suture is ne-
cessary. In wounds of the tongue which we sometimes
see to occur from biting it, or receiving a blow on the chin
while the tongue is protruded, it is necessary to use the
interrupted suture. As it is difficult to get at a wound
of the tongue, the patient shutting his mouth with
pain, it is necessary to place a soft stick of wood between
the teeth to prevent getting bit, if necessary, the tongue may
be drawn out by a hook. Wounds of the tongue generally
heal in about 6 or 8 days. The patient should be fed with
spoon victuals. In wounds of the ear a simple suture is in-
sufficient.

Wounds of the Throat, mostly occur to people intent
-d on to commit suicide. When the skin is only divided there is
no difficulty in curing it: but sometimes the trachea is
divided & the large vessels are exposed: the first thing to be
done is to secure all the bleeding vessels, whether arteries or
veins. - even if the carotids be divided they may be sec-
ured by a ligature as the circulation may go on to the
head by the vertebral artery. When the hemorrhage is
stopped the sides of the wound may be approximated
this can mostly be done, if small by adhesive plaster alone
but if there be not sufficient we may use sutures, taking
great care to include the skin & cellular membrane alone,
(for if a stitch was taken in the pharynx it might create vomiting, by its
irritation, & if in the trachea it would occasion a continual coughing)
When this is done the head should be inclined forwards
to favor the union of the divided edges, & be secured in
that position by a bandage. I believe in every case
it would be most proper not to draw the edges too
close together, so that the blood & matter collected may
be discharged. All the vessels should be tied although
apparently done bleeding, for if any blood be left,

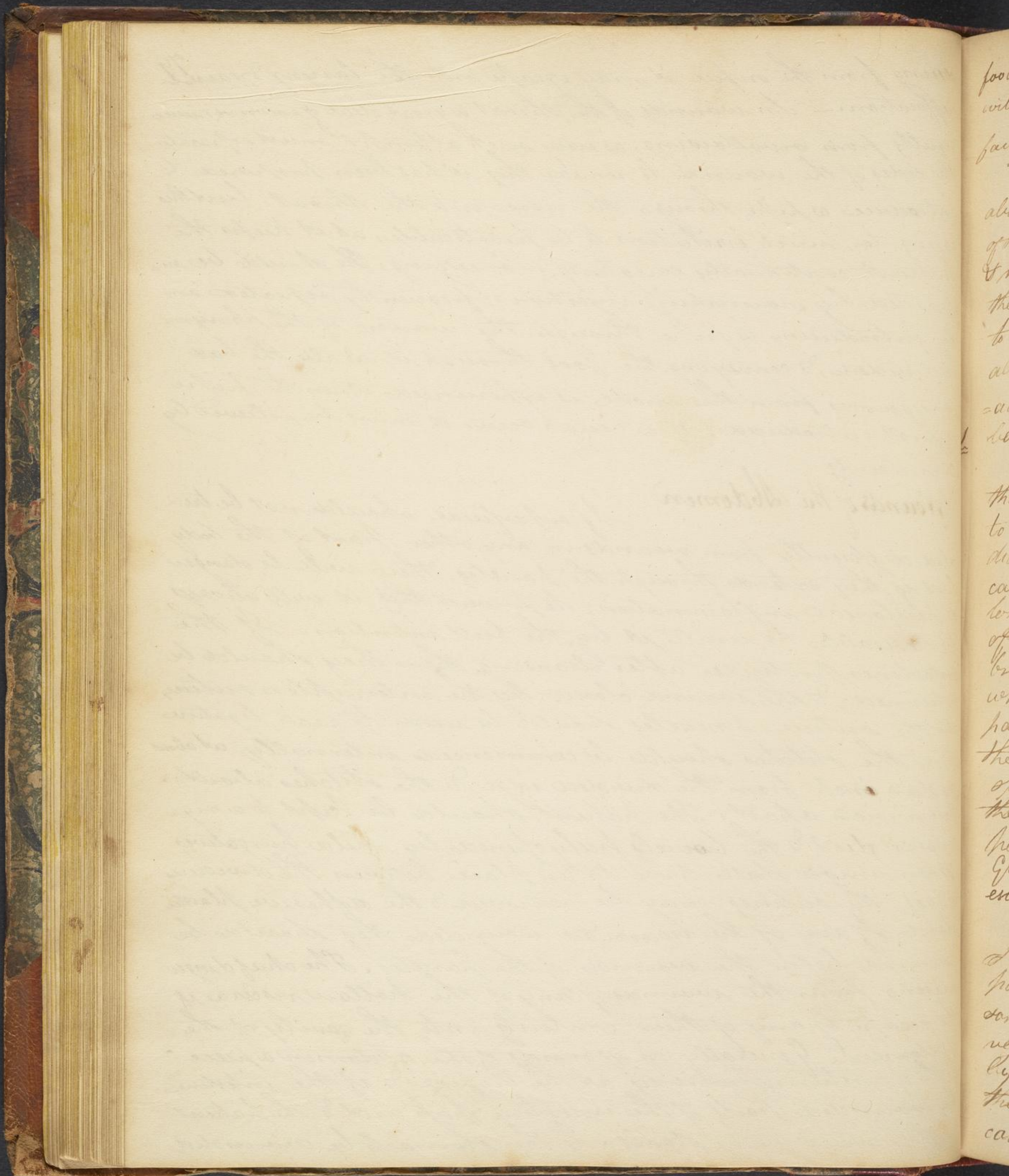
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escaping from the orifice it may escape into the larynx & cause suffocation. — In wounds of the throat a great deal of inconvenience results from swallowing, as every such attempt must separate the sides of the wound. To remedy this it has been proposed to introduce a pipe through the nose into the throat, but this causes too much irritation to be practicable, as it keeps the patient continually coughing or sneezing. He should be supported by nourishing injections; frequently repeated and by introducing a pipe through the wound if the pharynx is divided, & conveying the food through it, as all the bad consequences from this mode is experienced when the pipe is first introduced; if a cough occur it must be relieved by demulcents.

Wounds of the Abdomen

If superficial should not be treated differently from wounds in any other part of the body, but if they extend through the parietes, there will be danger of peritoneal inflammation; to prevent this it will always be desirable to unite it by the first intention. If the intestines protrude, after cleansing them they should be returned, & the wound closed by the interrupted suture. In the suture 2 needles should be used to each ligature and the stitches should be commenced internally, at about $\frac{3}{4}$ of an inch from the divided edge, & the stitches about $\frac{1}{2}$ an inch apart. The patient should be kept to a rigorous diet & the bowels freely opened by mild purgatives. When union shall have taken place between the divided edges, the sutures may be removed & the adhesive plaster used. If any of the viscera are wounded they should be secured before the wounds of the parietes. The chief danger arising from the wounds of any of the hollow viscera, is the escape of any of their contents into the cavity of the abdomen. Generally in wounds of the abdomen a piece of the omentum protrudes at the orifice & if the intestine be wounded part of the intestine hangs out & the patient will have bloody stools. If the stomach be wounded,



food will be discharged through the orifice, vomiting of blood ⁸¹ will be induced together with cold sweats & a tendency to faint; & when it proves fatal the patient dies about the 3 day.

When the intestines are wounded they may be united with about 4 stitches: the knot may be tied so as to be on the inside of the intestine: when this is done cut off the ends of the thread & return the intestine. The thread will get into the cavity of the intestine & pass off by stool: it was formerly the custom to bring the ends of the ligature out of the wound in the abdomen, in every case: till Dr Cooper proved that the remaining part of the thread if cut close and left in the belly, will get into the intestine & pass off by stool.

Transverse wounds of the intestines are easier healed than longitudinal ones; & it costs much more difficulty to close a longitudinal than a transverse one: since the diameter of the intestine is diminished by the former causing an obstruction to the faeces at the place. If the longitudinal wound be not too extensive, that portion of the intestine may be removed & the transverse ends brought together. This practice has been tried & succeeded when 3 inches of the intestine had been cut out. The patient should be fed sparingly, so as not to distend the intestines; his food should be almost altogether spoon meat; laudanum should be given to allay the pain & keep the intestine still; so that their peristaltic motions may not prevent an union. Glysters should not be given, lest probably a part may escape by the wound.

Even the stomach may be stitched when wounded. I have known an instance in which it was done & the patient recovered. When the omentum is wounded some hemorrhagy generally takes place; the bleeding vessels may be taken up with the tenaculum, secured by ligature & the omentum stitched; but the ends of the thread must be left out of the wound in both cases. Sometimes the bowels are injured but do not

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protrude & it has been a question whether the wound ⁸³ should be dilated to search for it or not. I believe it is right to dilate it in a degree to search for the wound, if it is not already large enough; but the wound should not be enlarged freely, lest we induce great inflammation; but there are cases in which the intestines have been wounded & nothing done; in such cases it commonly unites to the peritoneum, rounds the wound of the parietes by adhesive inflammation. It would seem when the intestines are wounded, they stop the peristaltic motions, so as not to prevent their adhesion. When the bowels are injured & the wound cannot be discovered, if the orifice be large enough for the intestines to protrude it should be stitched up. If inflammation supervenes copious bleeding, leeches purging &c. are necessary. And sometimes the circulation seems weak, yet the inflammation may prevail to a considerable extent.

In wounds of the liver, if the right lobe be injured the pain is felt in the right shoulder; if the left lobe the pain is felt in the left shoulder; it is of a dull heavy kind. If the wound be small it will in general heal soon, but if it be large there is, in general, a considerable hemorrhage, & sometimes inflammation is produced in the peritoneum by the accumulations & distention of the blood in the abdomen. In these cases little can be done; the patient should use evacuants & live on barley-water & the like. If the gall bladder is wounded, its contents escape into the cavity of the abdomen, causing by its stimulus violent inflammation. It always proves fatal. I believe the same happens in wounds of the pancreatic duct.

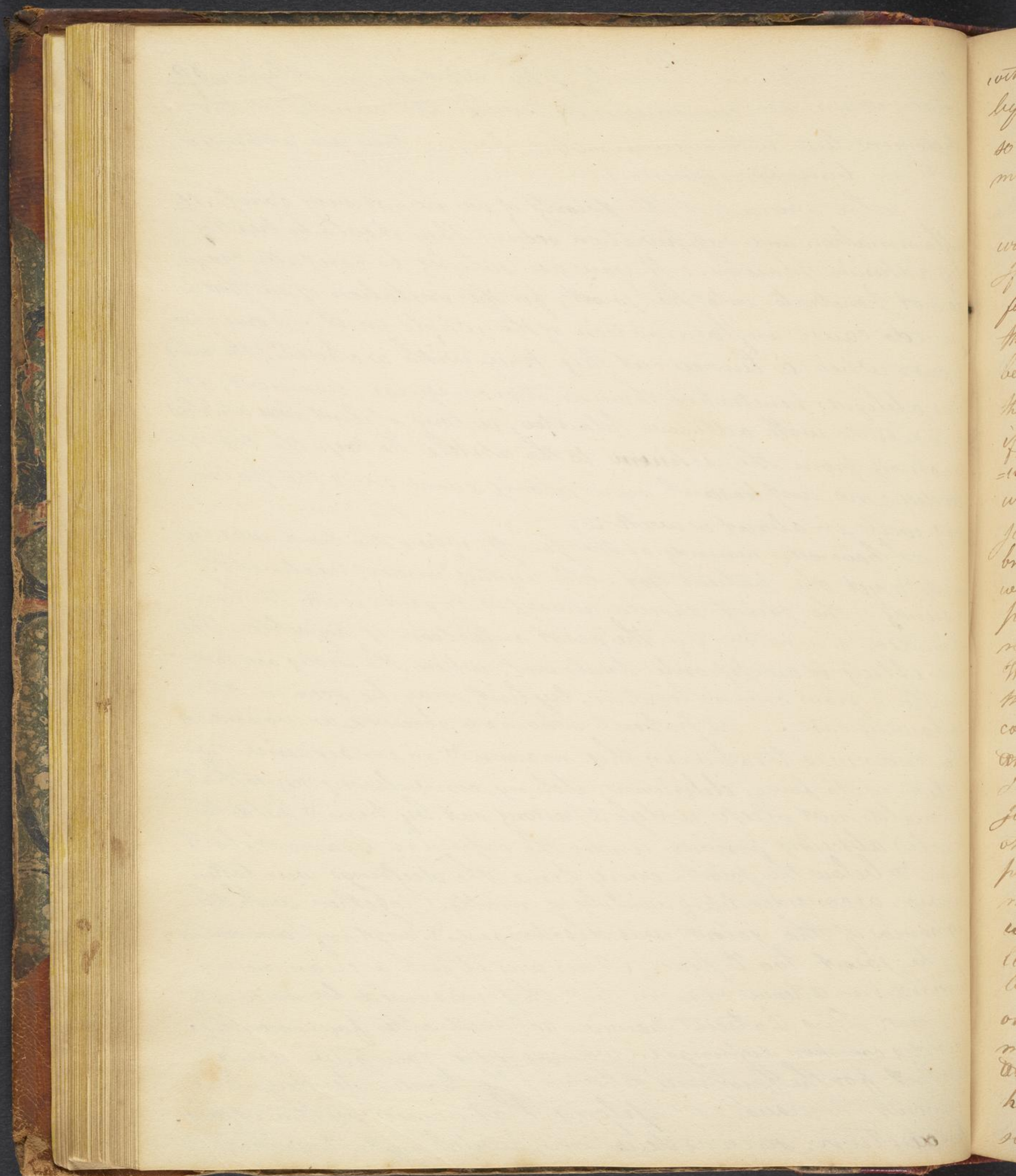
When the kidneys are wounded, the patients will pass bloody urine; & if it passes into the cavity of the abdomen it produces death! Though the back part of the kidneys may be wounded & the wound heal without

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any inconvenience. Wounds of the bladder, mostly ⁸⁵ fatal, when they communicate with the cavity of the abdomen but when ununited before they are attended with no bad consequences.

In wounds of the joints if we are not very careful inflammation and suppuration occur. They should be treated by adhesive plaister. If you use sutures be careful you do not penetrate into the joint; for the irritation of the thread would cause inflammation of the whole joint. I once saw a case where a turner cut his knee with a chisel, the wound was oblique penetrating through the capsular ligament; it was closed with adhesive plaister, a long splint was applied reaching from the ischium to the ankle to keep the leg extended; no unpleasant symptoms came on, & the patient was well in about a week.

I have seen wounds of the joints, where the bone was injured, & yet the patient got well by this mode of treatment. Wounds of the joints should always be treated with the limb extended & united by the first intention if possible. The bad effects of an opposite treatment, where the sides are prevented from coming together, by lint, may be seen in the following case. A patient who had received a wound in the knee; was treated in this manner & in consequence affected with fever, delirium, itching, convulsions &c. so that he could not sleep unless 2 persons sat by him, & held the limb; abscesses formed under the capsular ligament, both above & below the joint. every time the dressings were taken away, a considerable quantity of matter, together with the synovia of the joint was discharged & great inflammation of the joint took place. This was at first a clean incised wound: an edema came on but this was cured by mercurial purges. This patient however got well after four months. Besides common dressings in wounds of the joints, we use a splint for the purpose of keeping the limb extended this prevents the usual symptoms that occur without this precaution, such as delirium, twitching &c. together



with the inflammation of the divided surfaces, caused ⁸⁷ by the edges rubbing against each other; it should be applied so as to prevent the motion of the joint, as a very slight motion of it does a very great injury.

The situation of the limbs, where we expect or wish anchylosis should vary according to the limb affected. If it be the elbow the arm should be kept moderately flexed, for if union of the bones takes place when the arm is straight the patient will have no use of the limb; or that it will be very inconvenient; but if the elbow be somewhat bent the patient can perform many useful motions. - But if the knee joint be affected & the limb flexed when union takes place, the patient will not be able to walk as well as if it was straight: so that in affections of the knee joint the leg should be kept extended: the limb being brought in that position, the wound should be dressed with adhesive plaister, & secured by a splint & roller: the patient should be bled & put upon an antiphlogistic regimen, purge & if necessary a blister may be applied. Wounds often heal easily under this treatment though their first appearance is very unfavorable. The cartilages covering the ends of the joints are sometimes crushed and yet unite by the first intentions. From observation I have been led to conclude, that inflammation of the joints, does not so soon take place, as it would in any other part of the body from the same cause; the irritation producing only an increase of the former action, and a much greater secretion of synovia, in large lacerated wounds of the joints such as surgeons call compound luxations; where the wounds must suppurate it has been disputed whether the limb should be amputated or not; if it be not done there is sometimes danger of mortification from the violence of the inflammation and if the patient escape this, by being much reduced he is danger of tetanus, & if this does not take place suppuration & hectic fever, & consequent amputation

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are very likely to be the effects; at best the limb must anch- 89
ylose & remain stiff ever after; or if anchylosis be prevented
the cartilages will be removed & nothing but a ligature will
connect the bones thus rendering it perfectly useless. If
attempts are made to save it, the best application is a
bread & milk poultice. There is more danger in warm
weathers in persons accustomed to drink spirituous liquors
and in old people; than in opposite circumstances. Partial
stiffness of the joint is owing to adhesions forming between
the capsular ligament & the joint or end of the bones. But
there are circumstances, where the joint cannot return to its
natural situation, but must anchylose. Before a joint
can anchylose, the cartilages must be removed, as they
never unite. They never inflame, suppurate, or become
carious; or slough off; but are removed by absorption;
granulations are then thrown out from each end of the
bone & uniting together, render the joint anchylose,
forming but one bone. To favor this progress we should
keep the joint still; for if the uniting parts be torn asunder,
they will not so readily reunite.

Authors without assigning any reason for it,
have advised to saw off the ends of the bones; this removes
the cartilages out of the way, without waiting for their
absorption. But this is a bad practice, because it is
attended by very great pain, & difficulty, as well as a
danger of wounding the surrounding soft parts. I
believe scraping off the cartilages from the ends of the
bones with a knife, ^{will answer as well} when the constitution ^{can} bear the
irritation of it long enough to be removed by absorption
will answer very well & often better than the former
practice. A splint should always be used to keep
the limb perfectly at rest.

Wounds of the Nerves & Tendons.

When a nerve is partially
divided it is said to produce great pains twitchings.

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convulsions &c (this was said to be the case where these symptoms followed phlebotomy) but it cannot be dependent on this, for no surgical operation can be performed in any part of the body without wounding a number of the small branches of nerves & yet these symptoms seldom occur. The inflammation & swelling of the arm sometimes occurring after phlebotomy. I shall account for in a different manner. I mention this to guard you against a very terrible operation proposed by Mr. Bell; which is to make a complete division of the soft parts, at that place down to the bone. When weakness is felt in the arm immediately after bleeding, & the operation be attended with pain & if it increase and become worse for 2 or 3 days instead of better, then we may suppose a nerve or tendon is injured, & an incision may be carried a little deeper, & the nerve divided completely; but I am happy to say that such cases very seldom occur. Perhaps the best symptoms of a wounded nerve are, a numbness & partial paralysis of the arm below, where the nerve goes.

— Wounds of the tendons are no worse than wounds of other parts, unless the fascia is punctured. These are sometimes attended with inflammations of the parts beneath them which are bound down & compressed & suppuration ensues; when inflammation is attendant upon wounds of the fascia of the thigh, head &c. A blister should be applied over the injured part, & if this be not sufficient to relieve the inflammation, & matter be collected beneath, a free incision should be made to give vent to the matter. Sometimes the tendons are quite cut through: they require no different treatment from other wounds. The limb should be secured in the best position & the edges of wounds brought together with adhesive plaster. When the tendo Achillis is wounded, the foot & toes should be extended; this may be done in 2 ways 1st by fastening a roller to the foot & carrying it over the heel, the

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back part of the leg and securing it to the thigh or 3rd by 9³
a piece of paste board placed over the fore part of the leg & foot.
And secured by a roller. Care should be taken in all wounds
just above the heel, not to make too great extension, but
just sufficient to bring the divided edges into contact;
for by extending the toes too much we throw the skin
into wrinkles & bring it into contact with the divided su-
-faces & thus prevent their unions; this will sometimes
happen from a contraction of a part, even with a mod-
-erate extension of the foot & turning in the edges so that
it cannot heal. This we sometimes find after dressing
it for 1 or 2 weeks, without any symptoms of healing;
the skin should be turned out & kept so by the inter-
-rupted suture; when the tendo Achillis is wounded
the foot should not be used for 6 weeks.

Wounds of the Veins - With the inflammation & swelling
consequent upon them is best treated by Mr. Hunter in
a paper upon inflammation of the veins, published
in the 1st volume of the Medical & Physical Transactions
" ~~A case~~ *was* ~~once~~ *carried* by a Gentleman in Virginia
in a case of inflammation of the vein. At Lady the operation
of Venesection performed, when nothing particular occurred
till the 7th day when a numbness was felt about the
parts & an erysipelas appearance was seen, Saturnine sol-
-utions were used, and a low diet prescribed, without
success - In this situation she remained till the 9th
day when I prescribed a blister to the parts with good
success as many as 60 were applied when with the
use of a splint at the end of nine months she recovered.
In applying a blister to a wound always put over
the wound a piece of adhesive plaster before applying
the blister.

When the symptoms mentioned some time ago occurred
it was supposed that a nerve or tendon was wounded

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and that the physician was a bad operator. It has ²⁵
been proposed by Mr Bell under such circumstances to
divide the soft parts just above the wound by a transverse
incision to a considerable depth so that the nerve might
be divided; but this should never be done, tho' this
alleviates the pain & patients have got well after such
treatment. It should never be done because it subjects
the patient to much greater danger & the alleviation is
owing only to the taking off the inflammatory tension
of the part by dividing it.

Sutures.

I promised to give you a description of
sutures; I shall therefore proceed with this subject.
The sutures I prefer are the interrupted & twisted, the
interrupted sutures are nothing more than a simple
stitch, made by means of a needle passing from one
side of the incision to the other, through the edges
of the wound; this done draw the edges into contact &
tie a knot; this however should not be directly over
the wound, but a little to one side, & the suture is then
completed. Twisted Sutures are effected by means of a silver
wire incased in a steel point, which can be taken
off & put on at pleasure; this is to be passed through the
edges of the wound from one side to the other; which being
done draw off its point, that it may not hurt the
patient & the wire remains behind, through the
edges of the wound; then take a ligature and wind
it round the wire in the shape of \$ always decussating
in the centre & drawing the edges of the wound in
close contact when the wound has united sufficiently
to take off the threads draw the wire out gently &
the thread will come away.

all at once

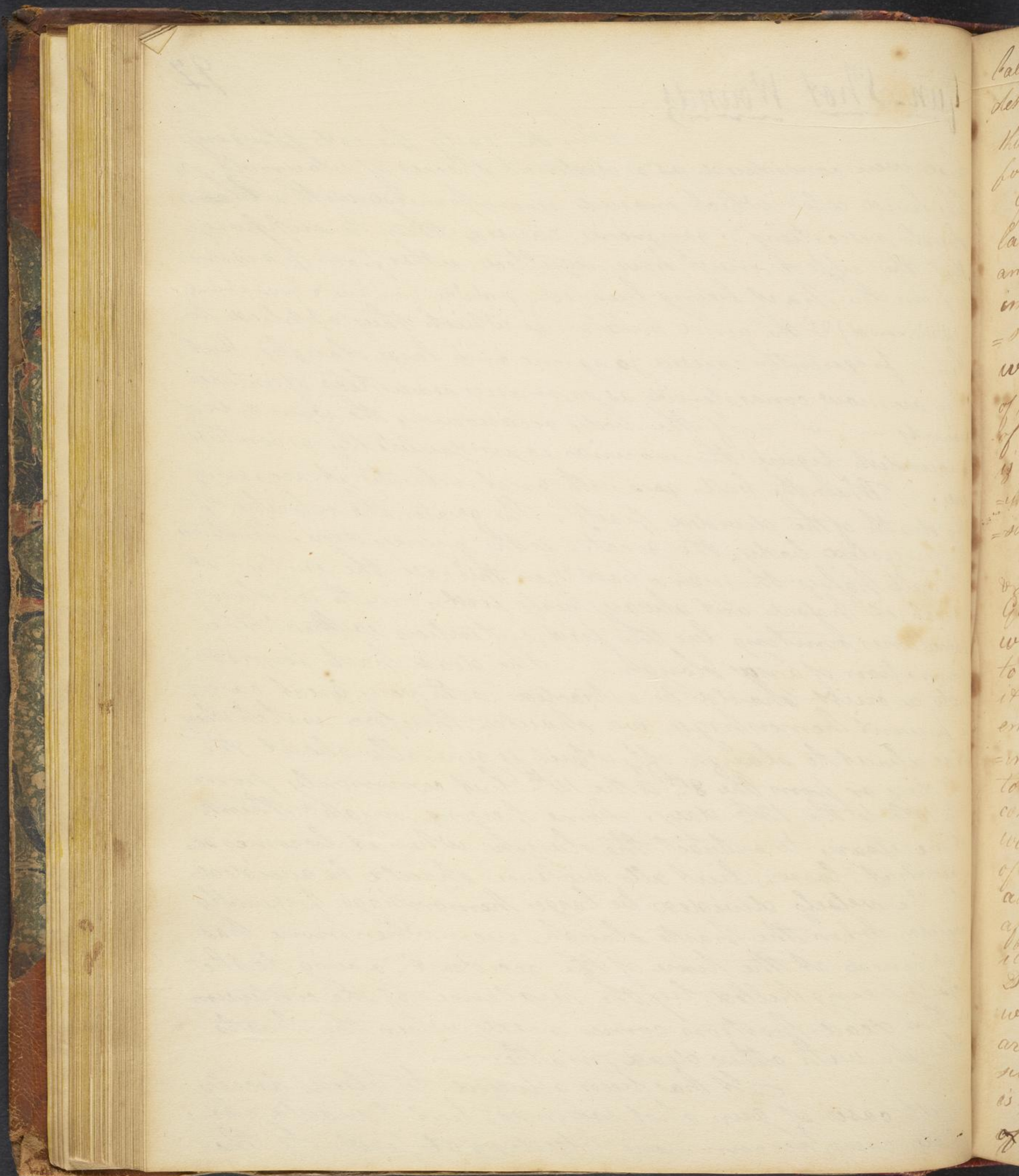
Gun-Shot Wounds.

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In the early periods of Surgery these were considered as a distinct species of wound. The livid color which ensued accompanied with a black slough, vesications & gangrene, caused them to suppose that the effect must have resulted, either from poison or from the part being burned (probably from fire & poison being little known) & the acrid substances which they applied to them, frequently caused gangrene and large sloughs; but they are now considered as so many varieties of contused wounds.

If the body occasioning the wound be of a roundish figure the wound is undoubtedly a contused one. When the ball goes with great velocity it occasions the death of the divided parts. The greater the velocity of the projected body, the greater is the injury done. Sometimes the ball passes through a part & in this case the surface at which it passed and always heals first, & with less slough. Sometimes uniting by the first intention without the formation of any slough. The dead part formed into a crust should be extracted with very great care to prevent hemorrhage, we should therefore watch when it is about to slough off, which is generally about the 10th day, or from the 8th to the 14th but commonly from the 10th to the 12th day. Some persons might think it necessary to extract the slough, when it becomes somewhat loose, but all violence should be avoided. If the vessels divided be large hemorrhage frequently occurs, when the parts slough, even when none had happened at the time of the accident, owing to the vessels being killed by the violence of the contusion & this dead portion comes away when the parts slough with other dead matter.

It has been advised to bleed freely in all cases of gun shot wounds but I would not in all cases, recommend bleeding at first. If the



ball move with a small degree of velocity, it does not 22
destroy the divided parts, & therefore these cases heal sooner
than those where the ball partakes of a greater degree of
force; because in the former case the parts are only torn.

Gun shot wounds require the same treatment as other
lacerated wounds. When the ball is lodged in the trachea
and the patient respires with difficulty, it should be
immediately extracted to preserve the patient's life. Gun-
shot wounds of the scalp are generally treated as other
wounds of that part. It is necessary in some affections
of the scalp to lay it open by incision, for the purpose
of examining the state of the cranium. When the cranium
is laid bare by a ball, the exposed part, if violently contu-
sioned, should be removed, as the contusion might occa-
sion an abscess within the cranium.

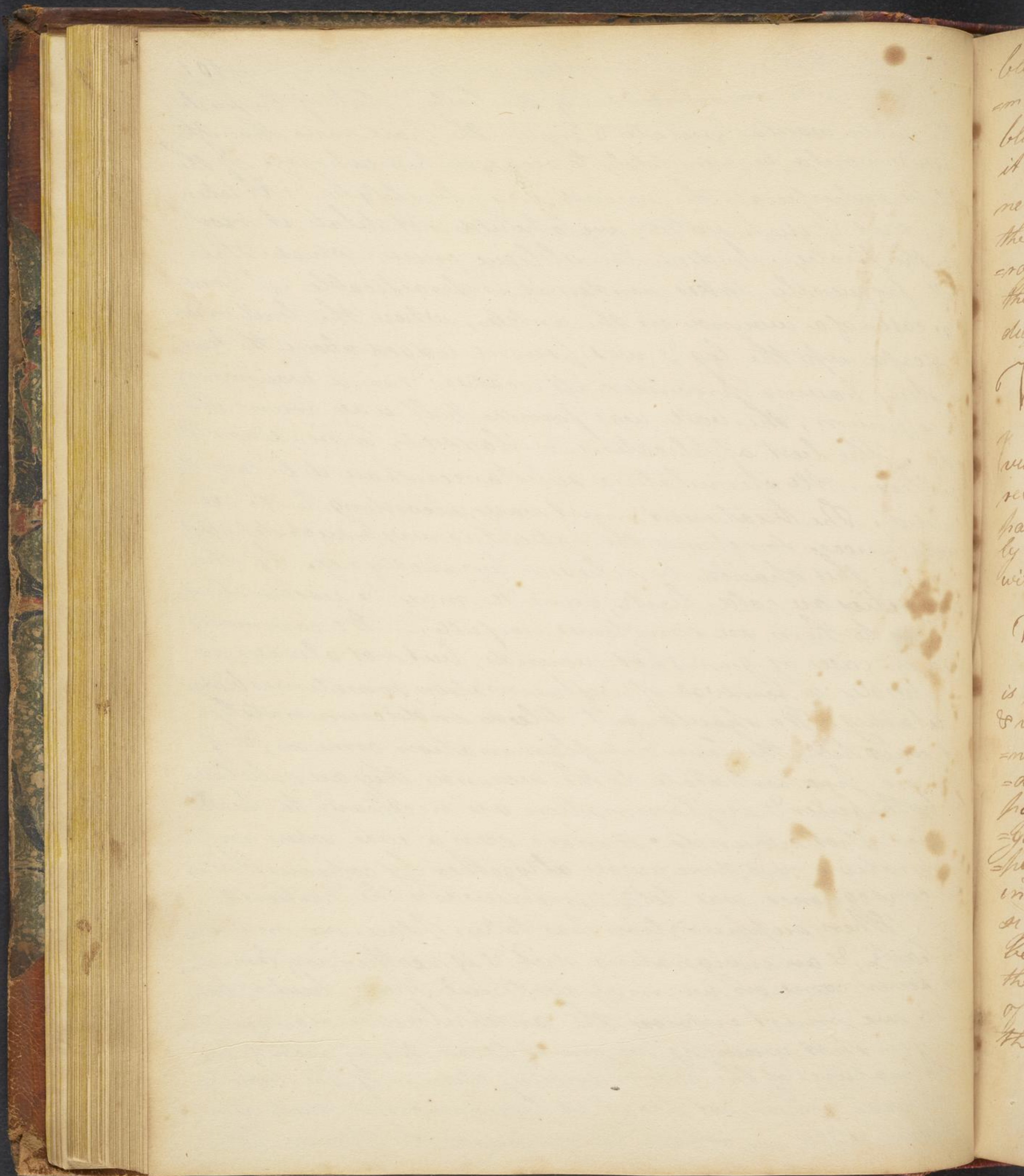
These accidents do not differ from other wounds
& I believe they have nothing peculiar to them. A
Gunsmith determined to put an end to his existence
while his fellow mates were gone to dinner. In order
to accomplish his design he loaded a pistol & applied
it to the back part of his ear. The ball did not
enter the skull, but took off his whole ear & surround-
ing parts, so as to expose the bone. He was able to walk
to the hospital, & relate the whole circumstance. He
complained of a great pain in the head: trepanning
was delayed, he was seized with delirium, inflammation
of the Dura Mater came on & he died. Some surgeons
advise the trephine in all cases of gun-shot wounds
affecting the cranium; but I would recommend
it only, where symptoms of inflammation of the
Dura Mater supervene. The patient feels easier
when the ball is extracted; when the fleshy parts
are wounded, if the ball be deep-seated & the orifice
sufficiently large for the introduction of the finger it
is preferred to a probe, for the discovery of the situation
of the ~~situation~~ of the ball; because the probe would

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not convey that accurate sensation which we derive from 101
the finger, as to the situation of the ball, & state of the part;
& the probe would irritate & injure the part more than the
finger & would be more likely to occasion hemorrhagy. If the
ball be superficial the wound may be dilated & it taken
out; but if deep seated, we should not dilate it nor
use the probe. Indeed the oblique course which the
ball frequently takes renders it impracticable. I knew
of a case of a wound in the ankle, where the ball made
its escape up the leg & was found lodged above the knee,
the skin having prevented its escape; & in a wound near
the sternum, the ball was found half way round the
body. The best application, is flaxseed, or bread & milk
poultice. All stimulating substances should be carefully
avoided. The treatment must vary according to the cir-
cumstances. Sometimes the patient is very much depressed
& weak, this should be relieved by anodynes. If the
extremities are cold, bark, wine &c. may be used. Sin-
apisms to them are sometimes useful. We commonly
bleed in cases of gun-shot wounds, but not always, as
too speedy a removal of inflammation sometimes brings
on tetanus. We should not bleed indiscriminately,
but wait till the fever & inflammation come on, & if
they are proportionate to the wound, they are salutary,
for both fever & inflammation are necessary to health
in gun-shot wounds. I have seen a case where inf-
lamination was done away altogether by copious bleeding
the consequence was tetanus ensued & the patient
died. When suppuration has taken place we may use
the bark, & an invigorating diet, & if neither inflammation
nor fever come on we may continue them, but if these
occur we must enjoin the antiphlogistic regimen. ~
In gun-shot wounds we must treat them according
to the nature of the case or injury done. If the bone be
fractured we must treat it like common fractures.
It is always necessary in wounds of the thorax to



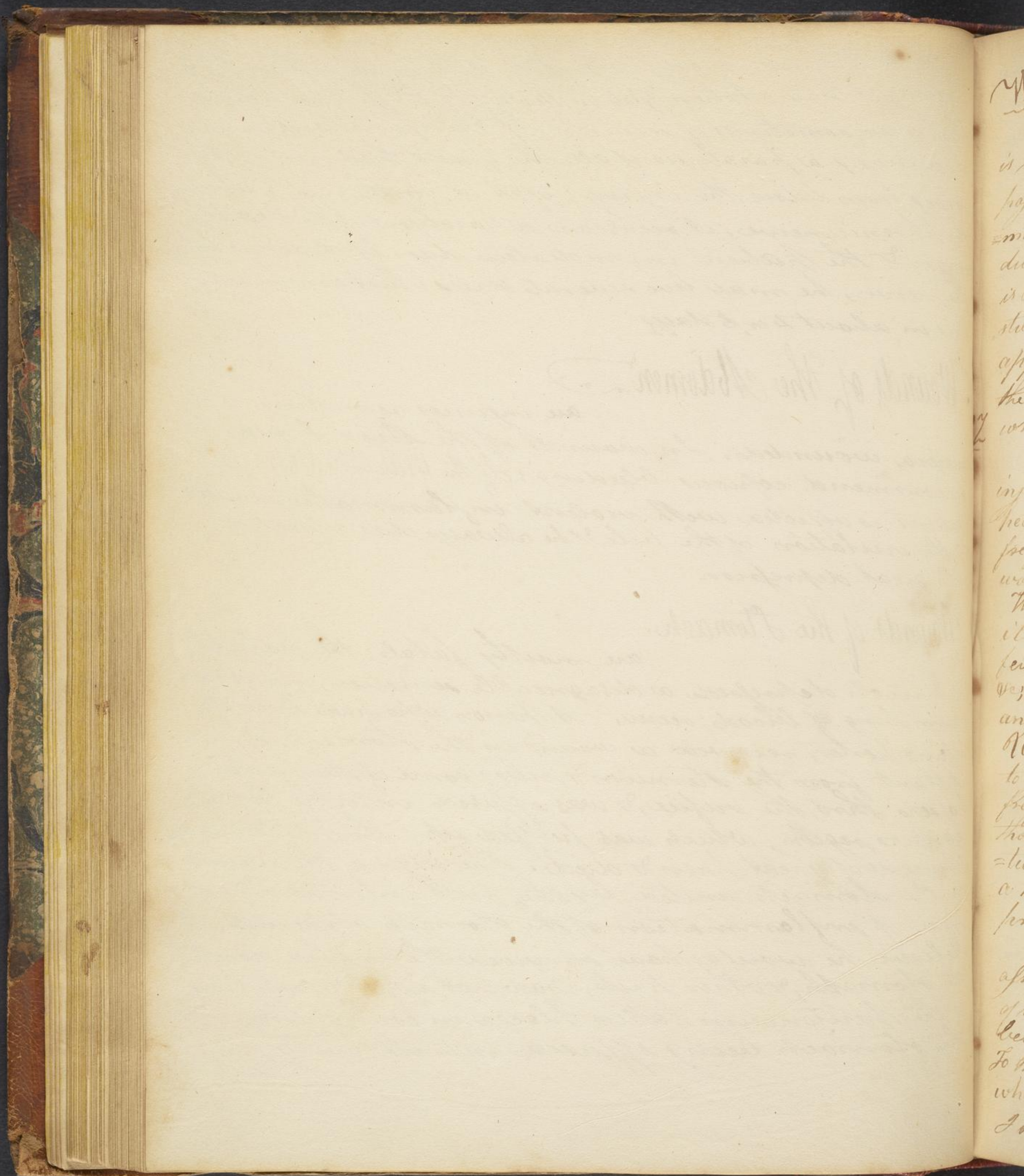
Bleeds as they are always attended with some inflam- 103
mation, I have taken 3186 in 14 days & the patient recovered.
Blisters are sometimes of service. If the spine be wounded
it occasions a paralysis of all the parts that receive their
nerves from below the injury; if it be in the neck above
the phrenic nerve, it occasions a paralysis of the Diaphragm
& the patient immediately dies, if it occur below
the nerve, he may live several days; but commonly
dies in about 2 or 3 days.

Wounds of the Abdomen.

are injuries according to the
viscera wounded. In wounds of the Liver I would
recommend copious bleeding; If the Gall Bladder, the
patient is affected with violent inflammation caused
by the irritation of the bile & he always dies affected
with great depression.

Wounds of the Stomach.

are mostly fatal; the patient
is much depressed, a disagreeable sensation, nausea
& vomiting of blood, occur. A person who had been drink-
-ing porter, received a wound in the stomach, equi-
-distant from the sternum & ribs; some of the porter
passed thro' the orifice, & was effused into the hypo-
-gastric region, which was puffed up: the patient com-
-plained of great pain & died. The edges of the wound
in the stomach united by the first intention, & no
sign of inflammation of the stomach appeared. I
believe he would have survived the injury done to
the stomach, & other parts, had not inflammation
of the peritoneum taken place, in consequence of
the stomach being effused into its cavity.



Wounds of the Bladder.

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frequently prove fatal; I believe it is not owing to any delicacy of that organ, but to the urine passing into the cavity of the Peritoneum & causing inflammation there, for we often see the neck of the bladder divided without any bad consequences. In all cases, rest is a necessary part of the cure; the patient should keep very still, his food should be mild & opening; blisters should be applied to the abdomen, as well as fomenting poultices, & the wound should be closed by an interrupted suture when situated in the abdomen.

When a bullet passes through a joint, so as to injure the bones composing it, there is very great danger. If hectic fever supervenes, amputation is necessary; but frequently the injury partakes of the nature of lacerated wounds & sometimes heals by the first intention.

When amputation is necessary, I would recommend it to be done immediately; because by this means hectic fever does not come on; we avoid inflammation, delirium &c; & the patient is more willing to submit to it now than any subsequent period.

Ulcers - I have said sufficient in my former lectures to give an idea of the definition of ulcers; they are of very frequent occurrence in the practice of medicine & it behoves those who attend at the hospital to pay the greatest attention to the appearances & best methods of cure of ulcers, since a knowledge of their appearances & treatment constitutes a principle part of the practice of a surgeon.

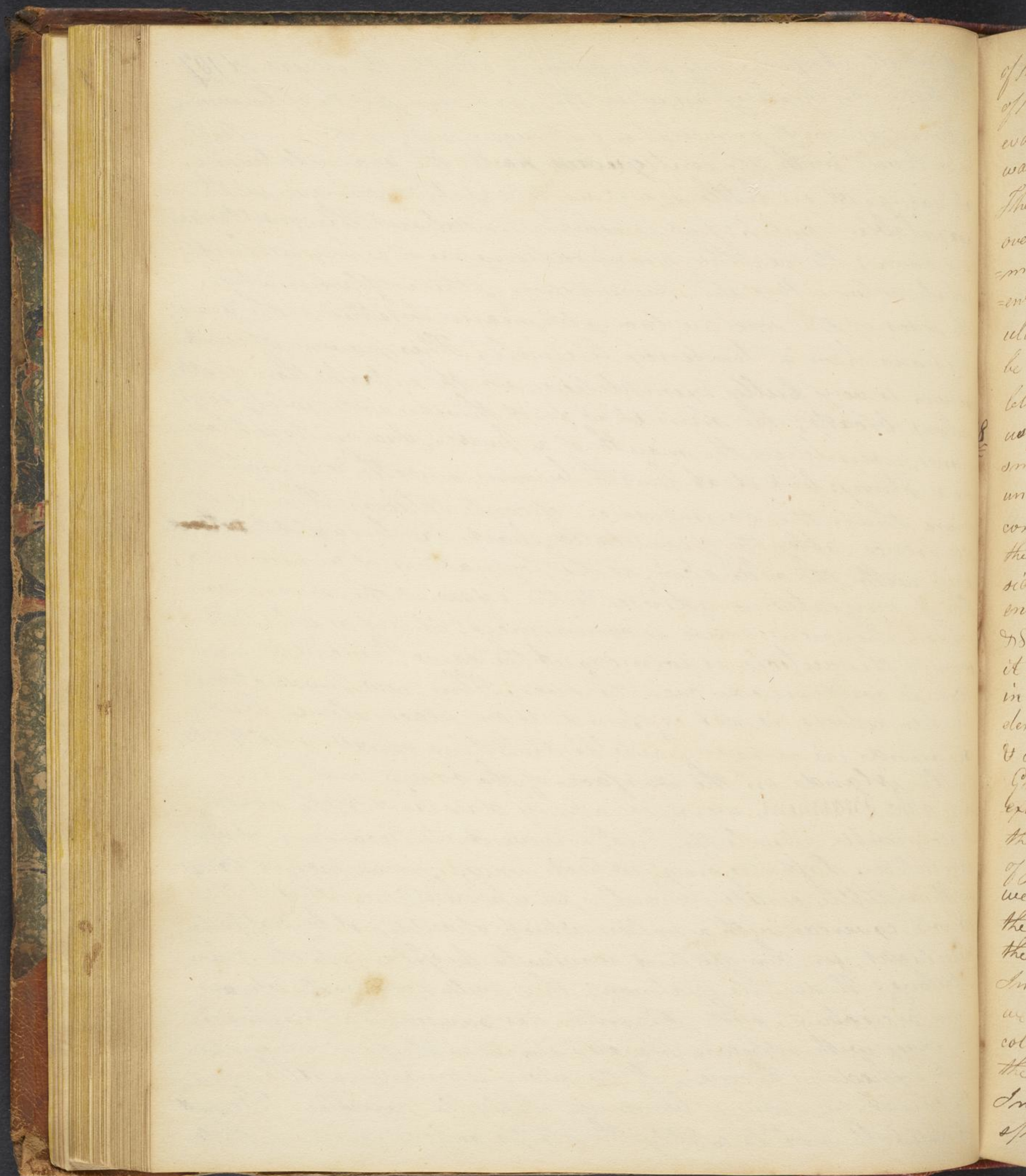
There are 2 methods of cure 1st by nature & 2^d by the assistance of art. As to the cause of ulcers, they are of very little or no consequence; the manner of treatment being the only thing necessary to attend to. To the Healing of ulcers there are three impediments - whatever injures the constitution, Edema, & improper dressings. I shall begin with an ulcer in the healthy constitution.

rhinoceros and go elsewhere

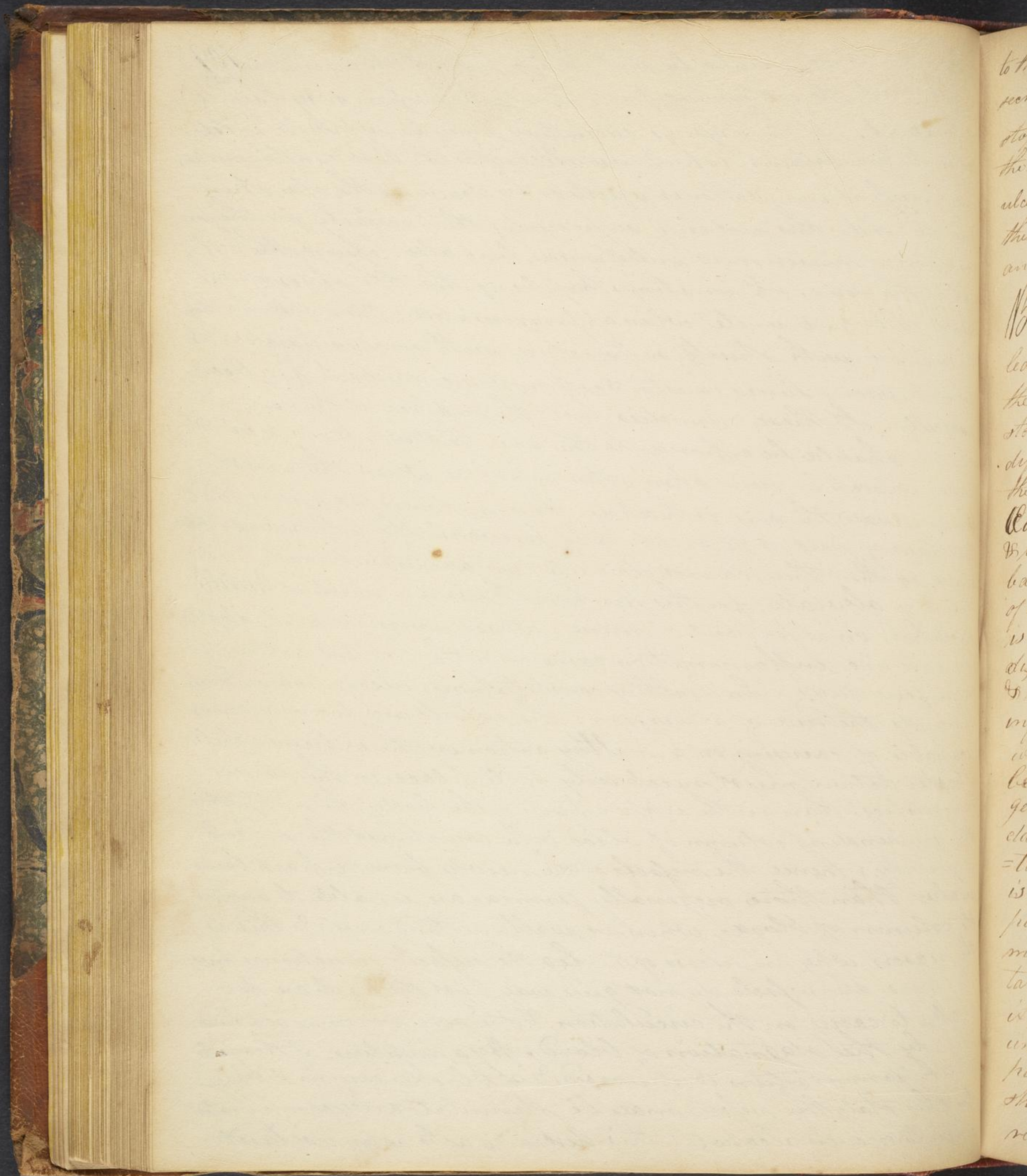
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and shall confine my observations chiefly to ulcers of 10th
the legs. In healing an ulcer the first process is the detumescence
of the edges; next granulations appear, raising the surface
to a level with the contiguous parts; the granulations
appear first in little red points & spots & covered with
coagulable lymph; pus is secreted of about the consistence
of cream; the healthy granulations are of a red or bluish
white color. By the subsidence of the inflammation
the sides of the sore are brought nearer together; & the gran-
ulations have a tendency to unite. This power of contri-
action is very fully exemplified in the extirpation of sol-
mon's breasts; the skin is at first thrown into folds, some-
times resembling the mouth of a purse, drawn together
by a string; but it at length becomes smooth, & is nothing
more than the consequence of contraction. The next
occurrence, after the granulated parts are brought to ~~the~~
level with the old skin, is the formation of a new one.
The granulations adhere to the edges of the sore from
which the new skin is commenced; it is of a whitish
color; & the cuticle is formed at the same time, & the new
skin is continued over the sore. This new production
in old ulcers, is not confined to one place alone, but
is found in many parts constituting small spots, like
little islands on the surface of the sore.

In the Treatment, we may apply dry lint to the sore
which will absorb the pus, & prevent its becoming dry &
irritated. Soft dressings, which may, or may not, be spread
with a little cerate, should be applied over this & the
whole covered with a roller which should not be wrapped
very tight, for then the lint would be pressed into the gran-
ulations. Under this treatment they will soon heal up, and
form a cicatrix. Mr. Baynton has advised to approximate
the edges with adhesive plaster spread on strips of linnen which
will expedite the cure. If the ulcer is on any capillary part
it must be shaved before we apply the plaster. We must
be careful not to apply the strips so as to cover the whole



of the sores, as we should by that means prevent the evacuation ¹⁰⁹
of pus, but the contiguous parts should be exposed every day to
evacuate it. If the dressings stick they may be wet with cold
water before dressing, which also alleviates the heat & inflammation.
The process of granulation is assisted by drawing the old skin
over the sore; this not only supercedes the necessity for the for-
mation of much new substance, but also lessens the exten-
sion of the sore. It sometimes happens that the sides of the
ulcers will not unite when approximated; they should then
be washed with spirits, or touched with some escharotic, as
blue vitriol, Lunar caustic &c. powdered rhubarb has been
useful. If these remedies fail, the surface of the sore, if
small, should be exposed to the air, to dry, & form a crust
under which a new skin often forms; & when the crust
comes away the sore is healed. It sometimes happens that
the flow of pus is so great as to prevent the adhesion of the
sides so that they cannot close up; an astringent wash will
entirely obviate; for this purpose I used a wash of Vit. Alb;
& Sacch. Sat; on a patient of mine, which immediately stopped
it; adhesive inflammation came on & the patient got well
in a few days. In healthy constitutions, ulceration seldom
demands the aid of a surgeon; the vessels are firm & vigorous
& capable of carrying on a healthy action in the extreme vessels.
Greater action must necessarily take place in the lower
extremities, than in the upper parts of the body, to support
the impending column of blood & to counteract the effects
of gravity; hence the vessels of the newly formed part being
weaker, than those originally formed are unable to support
the column of blood, when we walk or stand erect; & this is
the reason why in ulcers of the leg the vessels sometimes burst.
In others, the vessels do not give way, yet the parts are too
weak to carry on the circulation, & the sore becomes of a livid
color, by the stagnation of blood. By a rupture of the vessels
the inflammation is increased, & a bloody serum discharged.
In this state the vessels may be stimulated by camphorated
spirits or even alcohol; this discharge acts as an irritant



to the new & tender granulations, inflammation comes on & the III secretion of good pus is diminished; If this discharge is not soon stopped, the granulations slough, the bad symptoms return & the sore is enlarged. The best remedy in this as well as in varicose ulcers, is a horizontal position on the back, & perfect rest, & when this cannot be done, a bandage should be applied to prevent an over distention of the vessels -

Bandages are of three kinds, the laced stocking: strips of leather, muslin or linen spread with adhesive plaisters, the cotton ones are preferable. And the roller - A laced stocking would answer every purpose, but it is very difficult to obtain. The use of bandages is to support the vessels when we are erect -

Edema, is another impediment to the cure of ulcers, it is formed by adhesive inflammation, which lays the basis for the granulations by uniting the outer parts of the cellular membrane; the watery part of the blood is thrown out into the cells of the adipose membrane distending the sides of the sore, & stretching the vessels & the cells being rendered more compact by the adhesive inflammation, cannot give way to the distending force which presses against the granulations, & if the distention be long kept up they will be apt to slough off; Edema generally subsides at night & the injury done during the day, is then repaired. In this way it will often continue some time, the Edema destroying by day what is renewed at night. - In the cure, rest & a horizontal posture, are necessary; if this is not sufficient a roller must be applied. Some authors advise the patient to take some exercise after the application of a bandage, it is certain that the part will, sometimes heal speedily under this treatment; but I believe sooner if the patient is kept in a state of quietude. The bandage should be applied in the morning, before the patient rises & consequently before the leg swells -

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A third impediment, is that method of treatment which ¹¹³ some surgeons call "Dressing to the Bottom" It is pressing lint or other substances, to the bottom of the wound & is a very hurtful practice, as it rends the uniting parts, & keeps them asunder & consequently prevents their healing: all such dressings act precisely as a pea in an issue. I might next enumerate different powders, salves &c that prevent the healing of ulcers, but it is unnecessary: I shall however just mention that all stimulating salves are improper: they either bring on inflammation, or, by their acrid qualities act as corrasives; & by removing these unnecessary dressings, we put the sore in a state of healing. Dressing to the bottom was the ancient mode of treating fistula in Anos.

Whatever impairs the constitution, independent of specific diseases, is an impediment to the cure of ulcers, the use of spirituous liquors, acts in this way, as we see ulcers in people frequently intoxicated, very difficult to heal: very warm or cold weather retards the cure of ulcers; fevers are very generally hurtful, tho' I have seen an ulceration, as large as the palm of the hand after resisting other treatment 6 months cured by a fever in 3 days. The simple strength of the constitution has been supposed to have an effect in the cure of ulcers: observation proves the truth of this, in general, as the parts are better able to go through their operations, tho' I have seen them heal equally well in weak constitutions.

I shall now speak of the different kinds of Ulcers, under the following heads 1st of Inflamed Ulcers - these are known, by their pain, soreness & swelled edges accompanied by an increase of heat; they discharge a thin serum & other matter which has a purulent appearance; they frequently throw out coagulating lymph which coagulates over the surface of the sore, adhering slightly to it, but does not form healthy granulations.

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Treatment: If much inflammation be present, bloodletting, ^{purg.} 115
or are necessary: bread & milk poultices or those made of lint seed
flour, are the best applications to the part & the patient should
be kept in bed. When the patient is too weak to admit of
evacuations, & the ulcer is situated on the leg or arm, it
may be raised to favor the return of blood; this acts as
a local depletion without depriving the patient of blood.
I have seen this accelerate the cure immediately.

When the inflammation has subsided, it may be considered
and treated as a healthy ulcer in a sound part.

2nd Fungus Ulcers - These have large granulations with
sound tops, which are above the surface of the other parts.
& have no disposition to heal: & sometimes have great
sensibility & bleed from the slightest touch: in others
they have little or no sensibility. These may be treated
with a simple compress, & secured by a roller, which
presses the granulations together & prevents the growth
of fungus: if this is not sufficient, the excrescence may
be destroyed by lunar caustic; astringents sometimes
answer the same purpose.

3rd Edematous Ulcers - In these there is an extravasation of
serum into the cells of the cellular membranes: the granulations
become of a purple color. If the patient's strength be much
exhausted evacuations will be improper. The edema can
often be brought down by adhesive plaster & raising the leg.
If this does not answer, it may be remedied by a roller
wound from the extremity upwards, or by a laced stocking.

4th Sloughing Ulcers - In these the sloughing frequently ar-
ises from a weakness in the granulations. In some old
ulcers when the granulations have arisen to a level with the
sound skin, they become of a black color, mortification
comes on, & the parts slough. Sometimes the mortification
does not stop even at the edges of the sore, but goes on
sloughing at one part while the skin forms at another
in general the mortification takes place over the whole
surface of the sore, This is generally attended with

* Where the sloughing process goes on very slow, it may be hastened by the vapour of Vol: Alkali - Red Precipitate in powder has been successfully used when Ungt: Precip: has failed - -

o 1 gr of Linnæa caustic to $\frac{3}{4}$ of water

with febrile symptoms, but they sometimes die through ¹¹⁷weakness. The part is generally very sensible to the touch. Ulceration sometimes comes upon both legs at once; one breaking out while the other heals: this proves that it does not depend upon weakness of constitution, for then both should be affected alike.

Treatment. - In cases depending upon weakness the treatment should be bark, opium, nourishing diet &c; and dressed with a poultice combined with Candanum; when the mortification has stopped; carrots grated & boiled in milk; or the fermenting poultice mixed with powdered charcoal may be applied to correct the fetor. Sometimes while the mortification is going on extensively, maggots are formed in the dead parts; to alleviate this it should be washed over, with nitric or muriatic acid, diluted in an equal quantity of water: after the slough has separated employ the common treatment. *

I shall now speak of ulcers that frequently occur in weak constitutions; they generally look well at first; the granulations rise rapidly, & generally to a level with the true skin; but our hopes are soon frustrated, for the granulations, in a short time, change their appearance, become of a purple color, & a part is removed by ulceration. The patient should have a nourishing diet, & take the Peruvian Bark; Cola water may be poured over the sore 4 or 5 times every day; a weak solution of Lunar Caustic, on lint and applied, has proved useful; citrons ointment; or lint dipped in a solution of oak-galls, to which Candanum had been applied, have been serviceable.

5th **Indolent Ulcers.** So where nature has been frequently protracted in her attempts to form a cure; the parts become indolent, have no disposition to form a cicatrix, & when the inflammation is renewed, the edges remain in a callous, tumefied ring, in consequence of the coagulable

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lymph not being absorbed when the inflammation is removed. 119
The best plan of Treatment, is to remove the callous edges, after
the inflammation has subsided & so change the ulcer to the
same nature of one from accident. This may be done either
by caustic, the knife, or by bandages & preparations. Mr. Baysnton
says the adhesive plaister will mostly answer. When the caustic
is employed, we should, when necessary, apply it over the whole
sore, taking care after it begins to heal not to apply it near
the edges, or we shall by that means destroy the granulations
& prevent the cure. Under this head I shall speak of the appli-
cation of Mercury. - this is sometimes very useful in the
cure of sores, given in small doses; but if this is found to be in-
sufficient, we should increase the dose, till a gentle ptyalism
is produced. - The Tinct. of Myrrh is sometimes used on the part.
Carious Ulcers. - is where the bone becomes diseased: the dead
part of the bone becomes a stimulus to the absorbents to sepa-
rate the dead portions of bone. I do not pretend to enter
into a discussion of the causes that produce exfoliation of
bone; but I can say that as soon as any portion of bone be-
comes loose, it should be immediately removed if possible.
When the bone is situate in a fleshy part, we may discover
whether it be loose by the introduction of a probe: if the
bone be tight, no pain will be felt on pressing it with
the probe; but if it be loose pain will be felt, even on
slight touching, in consequence of the dead part being
pushed upon the new & tender granulations, & blood gene-
rally follows the probe, in consequence of some of the tender
vessels being ruptured. It will often be necessary to make
an incision down to the loose bone in order to extract it; a
sponge tent however often answers very well, to dilate the
orifice. Sometimes the exfoliated piece is too large to admit
an incision being made sufficiently large for its removal
because if we divide the vessels, in so hard & callous a
part, it will be very difficult to take them up. To avoid
this danger, it is best to break the dead bone by strong

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nipples, after which the pieces can be readily extracted: 121
In a case of canous ulcer of the lower jaw, it irritated the mas-
-eter muscle to contract so that the mouth was kept closed, carti-
-lage was formed in this manner, so that the jaws could not be
opened: The surgeon not understanding the case, sent the patient
to the city to have it dissected supposing an adhesion of the parts
had taken place.

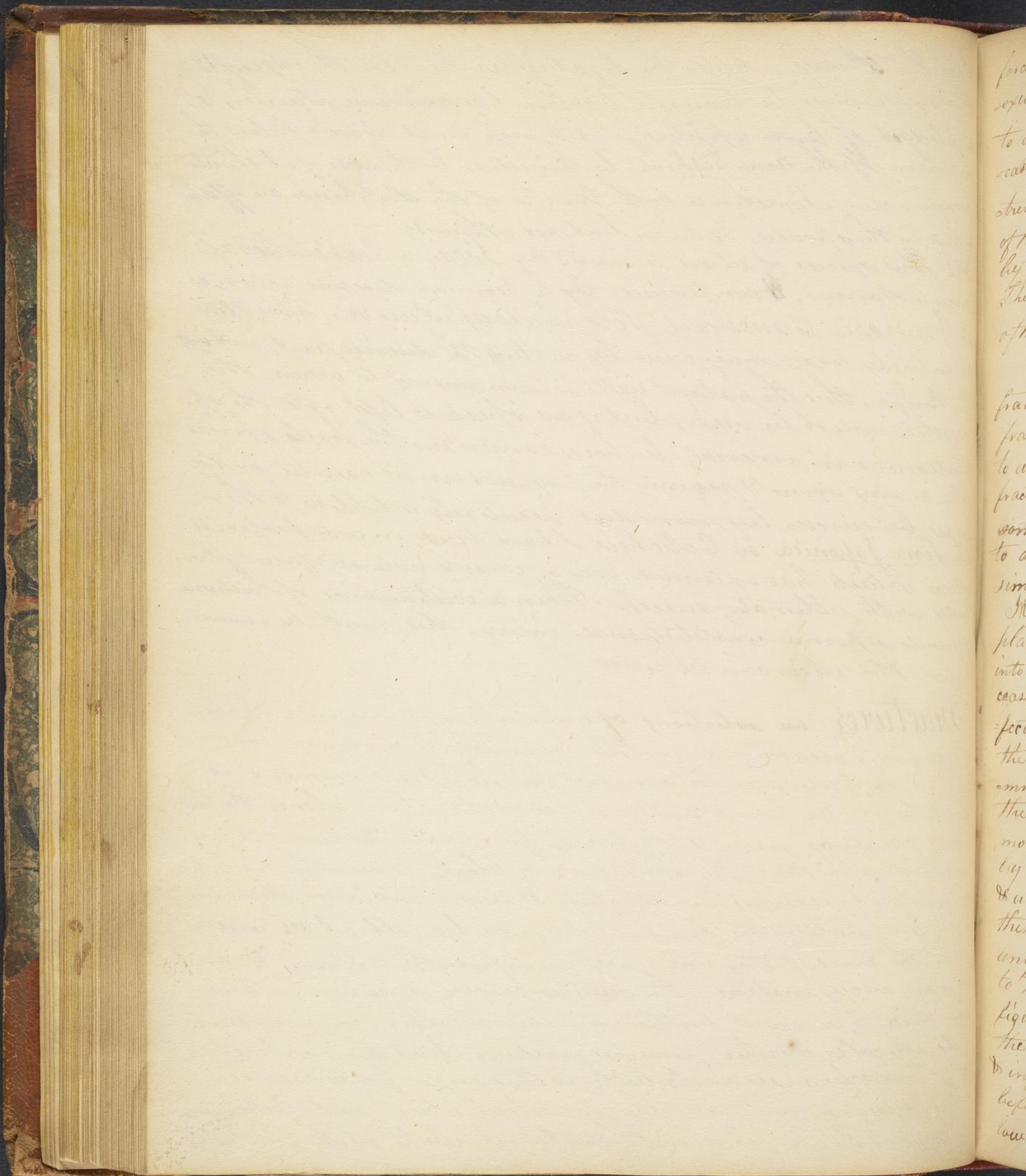
7th Varicose Ulcers. are caused by varicose veins, & very much
resembling ulcers of the indolent kind. The Vena Saphena
becomes varicose most frequently, & prevents the ulcers from
healing: they may be often remedied by a tight bandage
or laced stocking: but these are necessary to be continued so
long, that the patient is often tempted to leave them off
too soon, before the cure is completed: this may be super-
-ceded by tying a ligature round the vein, so as to take
off the column of blood. This practice was revived by Mr.
Hunter & since then by Mr. Home. Mr. Home recommends that
the patient should stand on a table: thus the vein will be
completely distended, & the ham will be at a convenient height.
But in this situation it will be difficult to get the light
to fall on the part, & the patient, not knowing the degree
of pain attending on it, is mostly restless & uneasy. I therefore
apply a tourniquet, so as to compress the vein without
affecting the arteries: the vein will be thus distended
& the patient may lay down. The vein may be tied up
in the ham: - The surgeon must punch up the skin trans-
-versely on one side of the vein, & an assistant the other: the
skin so raised is to be divided over the vein with a scalpel
the back of which should be towards the vein which will
sufficiently expose the veins: a silver needle with a round
point armed with a ligature, is to be passed round the
vein, & the vein being freed from blood is then to be tied:
I apply a small piece of linen over the vein directly
under the knot of the ligature: so that when the sides of
the vein have united, the ligature may be cut away
without injury to the vein. which may commonly be done

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about the 5th day. After the ligature is secured, the edges of 123
the wound may be brought together by adhesive plaster, &
a pledget of lint applied so as to press on it above & below the
ligature. If the vena Saphena be divided both ends of it should
be secured. Sometimes both trunks of the Saphena are affected
& then both should be tied, but not otherwise. ~
9th This species of ulcer is caused by Local or Constitutional
circumstances, & continued by a peculiar diseased action, as
in Venereal, Cancerous, Scrophulous ulcers &c. Those that
are entirely local may be cured by cutting the diseased part out with
the knife, this the patient will seldom consent to when the
caustic must be used, but if one speck is left after the op-
eration as in venereal buboes, cancers &c, the matter spread
like a ring worm & require the frequent use of caustic or they
may be cured by remedies peculiarly adapted to them,
The Tena Japonica or Cotectiv I have tried in a superficial
ulcer which had extended over a considerable surface of the
body with ultimate success. When a continuance of the disease
depends upon a constitutional injury, this must be removed
before the ulcer can be cured.

Fractures. are solutions of continuity of bones, in any part
of the body, occasioned mostly by external violence; but
this is not always the case, as the patella, & humerus are
sometimes broken by muscular contraction alone. Fractured
bones occasion pain, & spasms of the part, the limb is gen-
erally shorter than the sound one, blood is sometimes ex-
travasated & occasions tumefaction, & in one instance that came
under my notice, the pulse could not be felt at the wrist,
from the ends of the bone pressing upon the artery, & in
almost every instance the crepitus can be perceived. Bones
are said to be most brittle in frosty weather, because slight
falls in cold weather produce fractures, but the contraction
of the muscles may contribute to this end; for instance
when we pass over ice, the muscles contract with vehemence
& a sudden fall occasions them to act with still greater



force & frequently produces a fracture. This is proven by int¹²⁵
experienced persons, who very seldom break their bones in falling owing
to a greater relaxation of their muscles. An oblique fracture oc-
casions great pain, by the sharp edges of the fractured ex-
tremities, piercing the soft parts, & causing convulsive action
of the muscles; & when cured is often shorter than the other
by the point of one bone passing over the end of the other.
The limb readily admits of flexion at the fracture & is
often distorted.

Fractures are simple or compound; a simple
fracture, is when the bone only is broken; in a compound
fracture there is a division of the surrounding parts, so as
to admit of external communication with the cavity of the
fracture; if the external communication is small, it
sometimes heals by the first intention, & is then similar
to a simple fracture, & has been termed a *compound*
simple fracture.

In Simple Fractures, of the extremities, the limb should be
placed in a state of relaxation & the ends of the bone brought
into their natural position. In general the convulsive action
ceases, when the limb is reduced; this in general is easily ef-
fected; but when it cannot be done by the ordinary means
the patient must be bled, ad delirium animi; if infla-
mmation supervenes it should be reduced by bleeding &
the antiphlogistic regimen; The bowels should be kept
moderately open. The limb is to be kept in its position
by bandages & splints. Splints are stiff, firm substances
& are of 4 kinds; wood, leather, whalebone & paste boards; of
these the last is preferable, because it can be moulded to
any shape, by wetting them in hot water, & adapting it
to the part, & when it becomes dry it maintains its
figure. We are often not called till several days after
the accident has happened, & a considerable degree of swelling
& inflammation have taken place; this should be removed
before we attempt the reduction of the limb, by bleeding
low diet & the application of lead-water poultices, as

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union does not take place when much inflammation is present; 127
I may venture to propose it as a general rule, that at the
end of 8 or 10 days after the first dressing, we should always
examine the part; if any displacement, has happened and an
alteration be necessary, you may make as much as you please,
as but little union will have taken place; but if any cir-
cumstances occur, especially irritations, that seem to render it
necessary, it should be opened whenever they occur. The patient
should be kept on a low diet & submit to evacuations by veni-
section, in proportion to the inflammatory symptoms. If the
patient's constitution be unhealthy or weak, it may not be
necessary to evacuate at all. The dressings should be loosely
applied, at first, or else if the limb swell, the circulation
may be stopped, & so produce mortification. The time nec-
essary for healing the fracture depends on the age, constitution
& place of fracture; & the size & situation of the bone. The
bones of young people, heal sooner than old people's and
the jaw or ribs, sooner than the fibula. The bone in some
instances does not unite firmly, but forms a kind of
joint; & in fact the ends of the bone are sometimes tipped
with cartilage, & have a sort of capsular ligament. Two
cases of this kind were cured in the Pennsylvania Hospital
by moving the broken limbs, so that the extremities might
rub against each other; this was effected by causing the
patient to support himself on crutches, & bearing as
much as possible on the injured limb; which irritation
seems to cause the process, necessary for the formation of
bones, to be put in action. The adhesive inflammation
is produced, coagulating lymph is thrown out, which soon becomes
vascular, then cartilaginous & lastly firm bone. Mr Hunter
says when the bones will not unite, we should make an inci-
sion down to them, but he does not tell us of ever having
done it. It has also been proposed, that after making
the incision in such cases, we should amputate the fra-
ctured ends, in the same manner, as recommended in
wounds of the joint; but it is a dubious, painful,

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A terrifying operation & cannot be performed in many cases 129
as in the leg & forearm.

I would advise you to pass a seton between the fractured ends of the bone, the limb being first extended to its proper situation. This is a simpler method & is attended with less pain & inflammation, & can readily be performed in any situation. I have performed this operation with very good success; it was done by passing a needle armed with a skein of silk between the fractured extremities; this by irritating the part, caused suppuration & inflammation with granulations, & in 12 weeks the patient complained of much more pain & stiffness, in bending the arm at that place, owing to granulations beginning to unite the parts; these granulations soon united, leaving only the small hole of the seton, which healed in a few days, after its removal. In old people, it should be kept in a long time, for it appears to me that the soft parts around the bone, begin to ossify first.

Simple fractures mostly unite by the first intention, but bones require more time to unite than fleshy parts. The coagulable lymph, first becomes vascular, then cartilaginous & lastly bone; in this way the substance called callus is formed, which being of larger diameter, forms a tumor round the bone at that place, but it generally diminishes, becoming less & less, till it differs but little from bone itself. At first the granulations is full of vessels, but their number gradually diminishes, till it becomes pretty solid. If the wound be simply inflamed, union by the first intention fails; suppuration & granulations supervene, & the granulations when examined, are only vascular at the extreme points, the other parts being of the nature of bone.

In Compound Fractures the blood which effects the union escapes through the external orifice. Compound fractures sometimes partake of the nature of simple incision, but they are much oftener punctured, lacerated or contused.

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the fractured parts of the bone, being so blunt as to lacerate the soft parts, or the soft parts are very much bruised & the bone broken into several pieces, by the mechanical force applied, as when it has been run over with a waggon or any heavy body fallen upon it. The only application necessary in this case is emollient poultices. When the parts mortify, & the mortification extends to the parts that have not been injured, a blister should be applied partly on the sound & partly on the diseased part.

Fractures may be transverse, oblique, longitudinal or spiral. Compound fractures are sometimes attended with profuse hemorrhage; When much blood is effused, we should apply a tourniquet to the limb. When the blood is stopped, we must next determine whether the limb can be saved; we should never conclude that the patient will infallibly die unless the limb be amputated, but we should always state the danger of endeavoring to save the limb & let the patient & his friends decide; but if the part be so mangled & torn that the circulation cannot go on to the extremity, amputations must take place. It may be done before inflammation comes on, or if this is not then done, we must wait till the soft parts slough & then amputate the bone; but it is seldom necessary to amputate on account of hemorrhage. If amputation be absolutely necessary, I would prefer it immediately as we by this means prevent tetanus, & the patient is generally more willing to submit to it at this time than any future period. Considerable hemorrhage sometimes takes place from the medullary vessels & Gooch mentions a case of compound fracture, in which the stream of blood flowing from the medullary artery of the tibia, was equal in size to a crow's quill, & as it ran in a bony canal, he proposed to make 2 perforations near the end of the bone with a small trephine, which was by this means laid bare, and secured by perpendicular pressure. But I have found

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in amputation of the medullary artery, the blood effectually ¹³³
stopped by a cedar plug thrust in beside the artery, so as to
completely press the orifice together & left so for 8 or 10 days
untill an union of the sides had taken place. If bleeding
takes place from any part of a compound fracture in the leg
or arm, the femoral or brachial artery must be taken up; but
the ligature must be left so as to admit a small quant-
ity of blood to pass through. It has been thought difficult
to stop hemorrhage from the posterior tibial artery, but
I have always succeeded by cutting down to the artery
& then securing it by a ligature. When the inflammation
is great it demands our attention, for if it be suffered
to run on to the suppurative stage, the patient will be
greatly weakened by the discharge of matter; his consti-
tution becomes much emaciated & hectic fever comes on, when
the discharge is very great, & hectic has taken place, amputation
is advisable; & is the only mode of relief, for unless it be done
the patient infallibly dies; this should also be done when part
of the joints in large bones, is fractured. —

In compound fractures, we should endeavor to remove the
splintered portions of bones, if it can be readily accomplished
but if they occasion much pain in extracting them, we must
omit it till exfoliation takes place. It sometimes happens
that the external communication is very small, so that the
blood coagulates in the orifice, completely stopping it up
& rendering the cavity perfect, so that the bone unites as in
a simple fracture: but if through too much officiousness
with a view to assist nature, the surgeon should rob
out the coagulum, the fracture will be rendered a compound
one, & go through the process of suppuration & granulation:
if the external orifice be very small, a portion of dry lint
may be bound on it, which will become wet with the
blood, then dry & form a scale. After the bones are reduced
when the edges are not splintered, the edges of the wound
should be brought in contact & secured by adhesive
plaisters & thus reduce the accident to the condition of a simple
fracture.

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I had a case of compound fracture of the tibia, 135
where the ends of the bone had made their way through the
contiguous parts; the incision was an inch & a half in length
but notwithstanding it united as a simple fracture, by
this means: & the patient got well in about 6 weeks.

If the inflammation run too high, it may terminate
in mortification. To prevent this we should bleed, according
to the urgency of the case, & apply bread & milk poultices
to the part. Some surgeons are fearful of large evacua-
tions at first: on account of the copious discharge that
takes place: for fear of reducing the patient's system too
much, not recollecting that the inflammation which
precedes it is the cause of the discharge of matter. But
it is necessary to distinguish between mortifications caused
by inflammation, & that proceeding from weakness: if it
depends upon the latter cause, a plum, bark, wine &c. should
be administered, but if it be from the former cause, in com-
pound fractures apply a blister. It will be necessary
to distinguish between mortifications produced by the parts
being killed in consequence of the violence applied &
that which is the effect of inflammation: as the parts in
the first, having lost their life must necessarily slough:
& in the latter the limb should always be kept higher
than any other part.

Bones cannot bear much inflammation without
becoming dead. — I come now to speak of fractures of par-
ietal bones.

The *os parietale*, are sometimes though not often broken;
sometimes the fragments are pushed inward, which occa-
sions a difficulty of breathing. When the injury is not
very visible it may be discovered by feeling on the part.
When the bones are in this condition they may be raised
by introducing a spatula, or something of the kind
into the nostril, & when reduced it may be retained in
its place by a gum-elastic catheter, if necessary, but
I do not think it ever necessary & by inducing irritation,

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Inflammation it may be productive of great inconveniences, 137
as an extensive sore, & perhaps the fracture may be rendered a
compound one by this means. If they project out, they may
be retained: by applying a compress; or after they are reduced
they may be kept so by adhesive plaster: if the soft parts
are injured apply a bread & milk poultice.

Fractures of the Lower Jaw sometimes occur at the symphysis;
but most commonly between the chin and angles and
sometimes in both sides at once. The coronoid processes
are very seldom broken, because they are so well defended
by muscles. We can easily tell when this bone is broken tho'
the fragments are ever so little displaced, by rubbing the
finger along the bone, which will occasion pain. If one
fragment be taken in each hand, & then the ends of the
bone rubbed against each other, the crepitus will be readily
perceived, as also the contrary motions which each end will
admit of at the same time, & the patient cannot press
the lower jaw against the other; & when the fragments
are displaced, the rows of teeth are uneven; When the
fracture is on both sides the digastric muscle will
draw down the symphysis, while the other muscles
keep the other parts up.

Some surgeons advise pieces of paste board to be applied
on the jaw, to keep it in its place, but the upper jaw acts
as a splint, to which the lower jaw may be fixed by
a roller. — Apply the teeth directly together, making
the rows exactly over each other, & confining the jaw
with a roller: that which is generally advised, is the four
headed; applying the body of the roller over the anterior
& under part of the chin, then drawing 2 of the heads upwards
directly over the top of the head, & the other two heads from the
anterior part round the occiput & forehead alternately. I
prefer a simple roller, as it will answer every purpose; the
roller should be applied several times over the chin and
lower part of the jaw & brought over the vertex then around
the forehead & occiput. The patient should be kept upon

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spoon food & forbidden all speaking, & should not move his 139
jaws for several days. The dressings should be continued
about 3 or 4 weeks by which time union will take place.
The teeth are frequently loose, & under this circumstance au-
thors have advised us to extract them; but this should not be
done on any account, for fear of making a compound fracture
& this is mostly accompanied with the death of the ends
of the bone.

When the Spine is wounded, there is always an extravasation
of blood from the vessels of that place, which extravasation of
blood presses on the spinal marrow & consequently pro-
duces a paralysis of the parts that receive their nerves from
below the injury. Some have advised to make an incision
down to the bone to discharge the effusion; but as it is
very uncertain whether it be posterior or anterior & if the
latter as it can be of no use, I would not advise it. If the spine
be broken above where the Phrenic nerve goes off the patient
dies immediately, in consequence of respiration being ob-
structed by the paralysis of the Diaphragm & other muscles
concerned in respiration. When the injury takes place below
the 3^d vertebra colli; which it commonly does the patient
generally dies in about 3 days. A paralysis of the lower
limbs & of the bladder & intestines comes on so that they can-
not void urine & scarcely feces, we should therefore draw off
the urine 2 or 3 times a day, & keep the bowels open with
drastic purges; & as the Diaphragm only carries on respiration
it is dangerous to lay the patient on his face, as the pressure
on the abdomen, would thereby force the abdominal vi-
scera upwards, & thus prevent the descent of the diaphragm.
If the injury happen lower down the patient may
survive a longer time, but I never knew a case of this
kind, from which any one recovered. As the patient is
compelled to lie on his back, the parts on which he lies
mortify; on this account he should be frequently raised
& the parts rubbed with the hand, to prevent this cir-
cumstance as long as possible. When injuries of this

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kind have occurred in the neck, distention has sometimes been
proved serviceable; & tho' this is very seldom of use; yet, for
the satisfaction of the friends of the patient we may try it.
To effect this we should pass 2 bandages round the head: one
under the chin over the top of the head; the other from the
occiput round the fore part, & secure them together; an
instrument excavated in the middle, so as to rest on
the shoulders & not touch the head, & having a screw
at the top, & a hole in the piece directly under, & att-
ached to the screw, to admit the ends of the bandages.
In this manner extension is made against the should-
ers (previously putting a pad on each) by stretching the bandages
in consequence of turning the screw above. - Another
method is by tying the feet to the foot of the bed & the
head, to the head of the same, & thus apply extension:
having a hole in the bed, opposite the anus for a con-
venience. - A patient in the Hospital with this
affection appeared to die in consequence of mucus col-
lected in the trachea obstructing respiration, owing to
a weakness of the expiring forces -

When the processes of the spine are injured, the conse-
quences, to be feared, are not serious. The patient should
be kept straight & at rest -

The BONES of the PELVIS are very seldom broken, owing to their
great strength. Though I once saw the dorsum of the
ilium split through: The patient cannot stand up &
when he endeavors to, suffers great pain, conveying
a sensation as if he should fall to pieces, & on moving
the thigh a crepitus may be perceived. - I once saw
a fracture of the pubis by the earth's caving in on a per-
son, the reduction is easily accomplished by taking hold
of the anterior Superior Spinous process. In fractures of
the coccygis nothing more is necessary than keeping the
patient still & on a diet that will keep them loose.
In fractures of the ilium all that is necessary to be done
is to confine the patient in an easy position & to

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pass a roller round the pelvis; having the patient on a 14³
mattress pierced with a hole for a convenience ~

When the Sternum is fractured the part is to be kept as
stiff as possible by a tight bandage pressed round the
body. - The treatment of inflammation if it comes on has
nothing peculiar ~

A Fractured Rib, - seldom occurs individually; sometimes
4 or 5 are broken at once: the most common cause is falls
or substances falling on us. Fractures of the ribs are commonly
attended with great pain, when the patient takes a large in-
spiration; a hacking cough is mostly a concomitant symptom,
by applying the hand on the side when the patient coughs, the
crispitis is perceived; if the lung be wounded, the patient
expectorates bloody mucus, & air passes into the cavity of
the thorax; this when it takes place in a small degree is of
no consequence: there will be a small angle at the place of
fracture; if you press on it, it is of an irregular shape, &
gives a crackling noise; sometimes a swelling of the body
takes place called emphysema: which is occasioned by the
air passing from the lung into the cavity of the Pleura, & at every
inspiration it passes into the cellular substance, thro' the wound in
the pleura sometimes extending over the whole body. When the emp-
hysema is partial, a cloth wet with brandy, may be applied to
the part & confined with a roller. Dr Hunter has published an
account of the treatment of such cases in the 2nd Vol: of the London
Med: Observations, which I would advise you all to read. Once
in 90 great while it is necessary to puncture the cavity of the
Pleura to discharge the air. When this is done it should be
between the sound ribs, equidistant from the sternum & spine
because if we let the air to the fracture, we convert it into a
compound one: for although it is already a compound one
yet the wound into the thorax is often so small, that the
bone unites like a simple fracture - The air in the cellular
texture may be let out by punctures, when necessary, tho'
it never produces inflammation as I should when
treating of wounds

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In the Treatment of fractured Ribs a wide bandage should be passed 145 round the thorax, so as nearly to prevent the motion of the ribs; the bandage should be supported by shoulder straps, to prevent their slipping down. If great inflammation of the cavity come on, it should be treated as that from other causes, by T.S, antiphlogistic regimen &c. For the cough which often remains some time, the patient may take a demulcent mixture, or a solution of Gum Arabic combined with Laudanum. Sometimes small doses of liquid Laudanum are very serviceable. In about 3 or 4 weeks, union will have taken place between the fractured ends of the ribs.

The Clavicle, is most frequently fractured about the middle & it generally slopes from the scapula, inward & downward, when it is broken in the middle a displacement of the scapular fragment takes place, downward & forward, with seldom any displacement of the sternal part; the weight of the arm causing that part to descend, while the pectoral sustains the other portion; & by its action causes the bone to appear shorter. - If the clavicle be broken within the ligament, that connects it with the coracoid process it cannot be much displaced & is frequently overlooked by the surgeon. This circumstance should always be remembered for by being overlooked, the little motion that is allowed may prevent its healing & produce an abscess, & thereby cause a compound fracture; it may also subject the surgeon to be suspected of ignorance. But if it be broken in the middle, the crepitus may be felt on motion of the arm, the patient cannot raise his arm, & the shoulder will be lower than the sound one. When the bone is fractured between the acromion & coracoid process, the crepitus may be felt, & the surgeon can generally feel an inequality, by applying his fingers to the place.

The Treatment of fractured clavicles has been greatly improved by M^r Desault; by the old method of treatment there was nothing to prevent the pectoral muscles from drawing the scapular fragment under the sternal one.

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this practice is, in short, of no service, & is attended with a
very serious inconvenience viz excoriation of the axilla. The
following is Desault's method. To prevent the scapular part
passing from the sternal one, a wedge like pad should be
applied under the arm, with the thickest part uppermost,
while the arm is held at right angles with the body, & secured
by a roller, which should be passed several times round
the body to prevent its slipping. This intention is answered
equally well by sewing the middle of a roller to the pad,
which should be long enough to be carried over the sound
shoulder, crossed there, & then tied under the arm of the same
side. The pad enables the arm to act as a lever to the clavicle
& effectually prevents one fragment slipping under the other.
The pad may be of muslin or flannel stuffed with horse-
hair, or another bandage is to be applied round the
body & over the arm, drawing the elbow close to the body,
so as to keep up the extension of the clavicle, the forearm should
be bent so as to form a right angle with the arm & brought
before the body on the opposite breast: it may have a turn
or two round the wrist to support the weight of the fore-
arm; or a strip may be passed round the wrist & joined
to the other bandages to support its weight: a piece of
soft linens or flannel, should be placed between the
arm & body to prevent excoriation: the weight of the
arm is next to be supported: for this purpose an as-
sistant should take hold of the elbow & push the arm
upwards: this done a bandage is to be passed round as
follows: lay one end of it on the breast of the sound side
pass it over the fractured bone, then under the elbow
& over the end of the roller on the sound breast: then
under the axilla of that side afterward carrying it across
the back over the injured shoulder, under the elbow of
that side, across the back, under the sound axilla,
across the breast over the opposite shoulder, under the
elbow over to the sound axilla & soon we may know it is
properly applied by its forming a triangle both before & behind

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We must now feel the pulse to know if the circulation 149
goes on properly: if it does not we must loosen the dressings,
they should be continued about 4 weeks by which time
union will have taken place, tho I would advise to continue
a week longer.

The symptoms of a Fractured Scapula are a dropping of the
shoulder, pain & crepitus! The acromion process, is sometimes
broken, tho not often; but when this does take place, it is
to be treated in the same manner as a fracture of the clavicle.
It may be replaced by pushing the arm upward; the
bandages are to be applied as before mentioned & the
dressings should be continued about 6 weeks. When fractures
of the scapula happen, so as to break off the lower angle
it is drawn downward & forwards by the serratus major mus-
cles, & cannot be pushed upwards; but the scapula is
drawn up by the teres major: when the scapula moves
the lower fragment remains still. To bring the divided
parts together, the hand on the diseased side, should be brought
forwards to the other shoulder, which draws the scapula
round, so that the fragments come in contact. A soft
ball should be put under the arm, in the axilla, bandages
should be passed round the upper part of the arm, breast,
& scapula, then over the shoulder, & under the elbow, again
over the shoulder, round the body, & so continued; bandages
should also be passed round the arm & shoulder, to secure
the motions of the arm & keep it in this position, & to pre-
vent its removing the scapula: it commonly gets well in
4 or 5 weeks.

Fractures of the Os Humeri most frequently occur about its
middle, & when they happen about this place there is no diffic-
ulty in ascertaining the situation of the bones. The patient
cannot raise his arm nor use it in any degree: it bends at
the place of fracture in any direction, & if extensions be made
the crepitus may readily be felt & heard. To reduce it an as-
sistant should take hold of the condyles, bending the
elbow: & drawing it a little way from the body, to put

* There are four indications in this case which are apt to be
confounded 1st Fracture of the head of the bone 2nd Luxation
3^d Contusion of the Deltoid muscle 4th Fracture of the
fibres of the Deltoid muscle, —

the muscles in a greater state of relaxation; another should 151
take hold round the patient under the axilla to make counter
extension, or take hold of the opposite arm; the surgeon should
take hold of the arm & place the ends of the bone in contact
this being done a roller should be applied round the arm
from the hand to the shoulder; it should be so tight as to make
a moderate pressure, but not so as to stop the circulation.
Three splints are sufficient to keep the fragments in their
situation: the splints are to be secured by another bandage;
the forearm is to be supported by a sling, or which is better
by passing a broad roller round the body, so as to include the
arm & thus prevent motion of the arm in any degree, having
previously made a compress to apply under the arm, for
the purpose of making the side level, for the support of the
arm. The bandage for the support of the fore-arm, begins at the
opposite side, passing under the hand, over the elbow & round
the body, & then pursuing the same course again; at the ex-
piration of 10 days, we should examine the limb; the union
at this time will be so soft, that if any displacement have
taken place it may be remedied; in 4 weeks we may gradually
omit the bandages; if the forearm swells much, we may
wrap the bandages from the ends of the finger, but this is
seldom requisite. If the os humeri is fractured near its head
the patient complains of pain on every motion of the arm,
& pressing the arm against the side causes pain; the lower
fragment generally falls in toward the thorax. (I never saw
a case where it was before or behind) if it be inward the elbow stands
off from the body, & vice versa. When the lower fragment
is inward a pad should be applied close upon the axilla
between the arm & side, to keep the bone in its right
situation. — Fractures near the head of the Os humeri have
been mistaken for luxations; & by trying to reduce the lux-
ation, suppuration has sometimes been induced by
irritating the wound & surrounding soft parts. * This
mischievous may be avoided, by placing the fingers in
the axilla, when we shall be enabled to feel the

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fragments instead of the glenoid cavity! & by extension to 153
counter extensions being made: the crepitus may be felt, on
bending the arm. It is of great consequence to ascertain wh-
ether the humerus be luxated or fractured: for if the latter
& the lower piece lie inward the patient cannot rotate his arm,
when it is held in this situation in ~

TREATMENT. In fractures at the head of the os humeri, begin
the bandage at the wrist & wind it to the shoulder, after the
extension & counter extension have been made. Two splints
will be sufficient if they are broad, but 3 if they are narrow
applying one before, one on the upper side, & another on the inner
side part of the arm. These are to be secured by a roller. The
lower fragment is to be kept out by a pad, which is best
made of a piece of flannel folded up & placed under the
arm: this pad will serve instead of a splint, this being
done the arm is to be bent at the elbow & secured by a sling
& a roller passed round the body & over the sling & it should
be continued round the arm & body, all the way up to the
shoulder, & thus all motions will be prevented: the dressing
should be removed in 8 or 10 days & the parts examined &
if any displacement have happened, it may then be put in
a proper situation; & the ecchymosis which frequently
appears in consequence of the blood vessels being injured by the
broken fragments, will have completely subsided, & we are
the better enabled to judge of its proper situation. I once
saw a case where there was so much ecchymosis that I
could not feel the bones at first. It has been recommended
to make an incision, to discharge the blood, but it should
never be done, as it renders the fracture compound: the
natural process of absorption will mostly remove it: but
if at the end of 3 or 4 months it be not absorbed a small pu-
ncture may be made to discharge it: by this time the bones
will have united, & we shall avoid changing the fracture into
a compound one! As soon as the operation is done the edges of
the puncture should be brought into contact by adhe-
sive plaster, so that the wound may unite by the first intention.

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It sometimes happens from the excessive violence done to the deltoid muscle, that the patient will be unable to throw his arm directly outwards & upwards, & it may perhaps be several months before he will be able to do this. It is always proper to apprise the patient of this at first that he may not think the accident has been improperly treated. The humerus is sometimes fractured transversely, & sometimes longitudinally, at the condyles, so as to separate them. When the condyles are fractured, by moving the fragments, we easily perceive the crepitus: & the parts are so thinly covered, that the fracture may be readily felt. We may distinguish this from a luxation, by the patient being able to move his arm, in the former case but not in the latter, & the olecranon will be displaced in these fractures the fractured condyle is frequently drawn up.

Treatment. When the elbow joint is concerned in any injury, the arm should be always kept flexed. A bandage wrapped round, from the wrist to the elbow, the bones are then to be put in a proper situation, by extensions & counter extensions: the elbow must be flexed to a right angle, & the bandage continued up to the shoulder. Two splints of the shape of an  cut out of pasteboard, each forming a right angle, should be applied one over the internal, & one over the external condyle.

 Two splints of this kind, so formed that a, b, c, shall form a right angle. The distance from a to b should be long enough to reach from the elbow to the ends of the fingers. The distance from b to c, should be sufficient to reach from the elbow to the shoulder; but this distance should be less in the one that is to be applied to the inside of the arm than the one that is to be on the outside. The part which reaches from a to b should be wider than from b to c.

Then two more bent splints are to be applied, one anterior & the other posterior & the whole are to be secured by bandages.

 The two bent splints of this shape, the one that is to be applied to the anterior part should be shorter than the one on the posterior part. These should be cut out of pasteboard & bent to the proper shape, they should be narrower than the two first.

* To prevent deformity as the joint in fractures of the coracoclavicular after the splints are applied, confine the patient to bed and place the arm over his head so that the forearm may lay along side of it -

The splints that extend along the forearm, should reach to the ends ¹⁵¹ of the fingers. Every motion of the forearm displaces the fragments & must be prevented by a bandage round the body & arm. In about 16 days we should take off the dressings & examine the limb; & if when the arm is held horizontally the humerus, & bones of the forearm, form an angle with its apex above, or if they do not form an angle, which points below, (which is the natural position) we should apply splints very firm that form an angle of about 160 degrees one of which should be applied behind & another before with the angle pointing downward, & another bent to the same shape below. *

The splints to be employed in cases of deformity at the elbow joint should be of this shape. They should be made of wood & cut as to form an angle of about 160° at c at a, b, it should be considerably wider than at c, d, and longer from a to c than from c to e. a, b, c, d, to be applied to the forearm & c, d, e, to the arm. The length from c to e should be greater on the one that is to be applied on the outside, than that on the inside. The other splint used for this purpose should be of the same angle, but should be bent, & the same width all its length & is much narrower.

In about 10 days more we should take off the dressings again & bend the arm gently; which should be done daily after this to prevent a stiffness of the joint. *

Fractures of the Olecranon, are mostly caused by falls on the elbow & are always transverse. When the olecranon is fractured, the patient is not able to extend the forearm, because the triceps, which extends the arm, is inserted into the detached fragment; the upper fragment is drawn a little upwards, from its place, & it may be moved from side to side.

Treatment. The forearm must be extended, & the process being placed in its proper situation, it to be secured by bandages, beginning at the wrist & winding to the shoulder. When the bandage has got near the elbow, the surgeon must feel, to ascertain if any portions of skin have got between the fragments, if there have it must be drawn out & the bandage continued on. A splint should then be applied on the anterior part of the arm, to prevent flexion. In about 10 days we may examine the fracture, & after the 20 we should remove the dressings daily & flex the arm to prevent anchylosis.

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The dressings should be continued about 15 days longer till perfect 159
union takes place.

The Bones of the Fore Arm are frequently fractured, & the radius the of-
tenest as the ulna is seldom broken alone. The radius is commonly
fractured at the wrist, when the ulna is not broken with it, no dif-
ference, can here be seen in the length of the radius: all the per-
ceptible difference is an angular projection at the fore part of
the wrist: the fracture is commonly so low, as to be taken for a
luxation: under this impression the surgeon will put the arm
in a sling, & union will take place, forming an ugly projection
& the patient is not able to rotate the arm as usual. We may
distinguish between fracture & luxation by the crepitus attending
the former; we may also know by the tubercle at the lower end
of the radius not being opposite the styloid process of the ulna as
usual. It sometimes happens that both bones are broken at the
same place; when this is the case the patient cannot easily flex
his hand, whereas it can readily be done in luxations, the crepitus
may be felt, the arm bends at the fracture, & there will be a lateral
depression, by the bones being brought nearer together.

Treatment: to bring the divided surfaces into place, the elbow
should be bent, & an assistant is to take hold of the hand, & another
of the elbow, & make the necessary extension, & the surgeon can re-
place the ends of the bones without difficulty, by taking hold
of the arm & squeezing the flesh in between the bones, so as to
press them out: the interosseous ligament will prevent their
being pressed too far apart. This being done a bandage is to
be applied, while the extension is continued, beginning at
the wrist, & continuing it up to the elbow, care being taken
not to move the ends of the bone. Two splints should then be
applied wider than the arm, & long enough to reach beyond
the fingers, so as to prevent their motion: [redacted] This splint is also
that is necessary, taking care to have it wide enough to prevent the bandage pressing on the
bones so as to force them towards each other. They should be of firm materials
pasteboard without being wet answers very well. The splints
should be covered with soft linen. The splint on the back
part should not reach to the elbow: or else the patient will

* If the splints be made of pasteboard, the perspiration
is apt to soften it so that it will bend - to prevent
this - I apply ^{thin} a splint of wood in the sling -

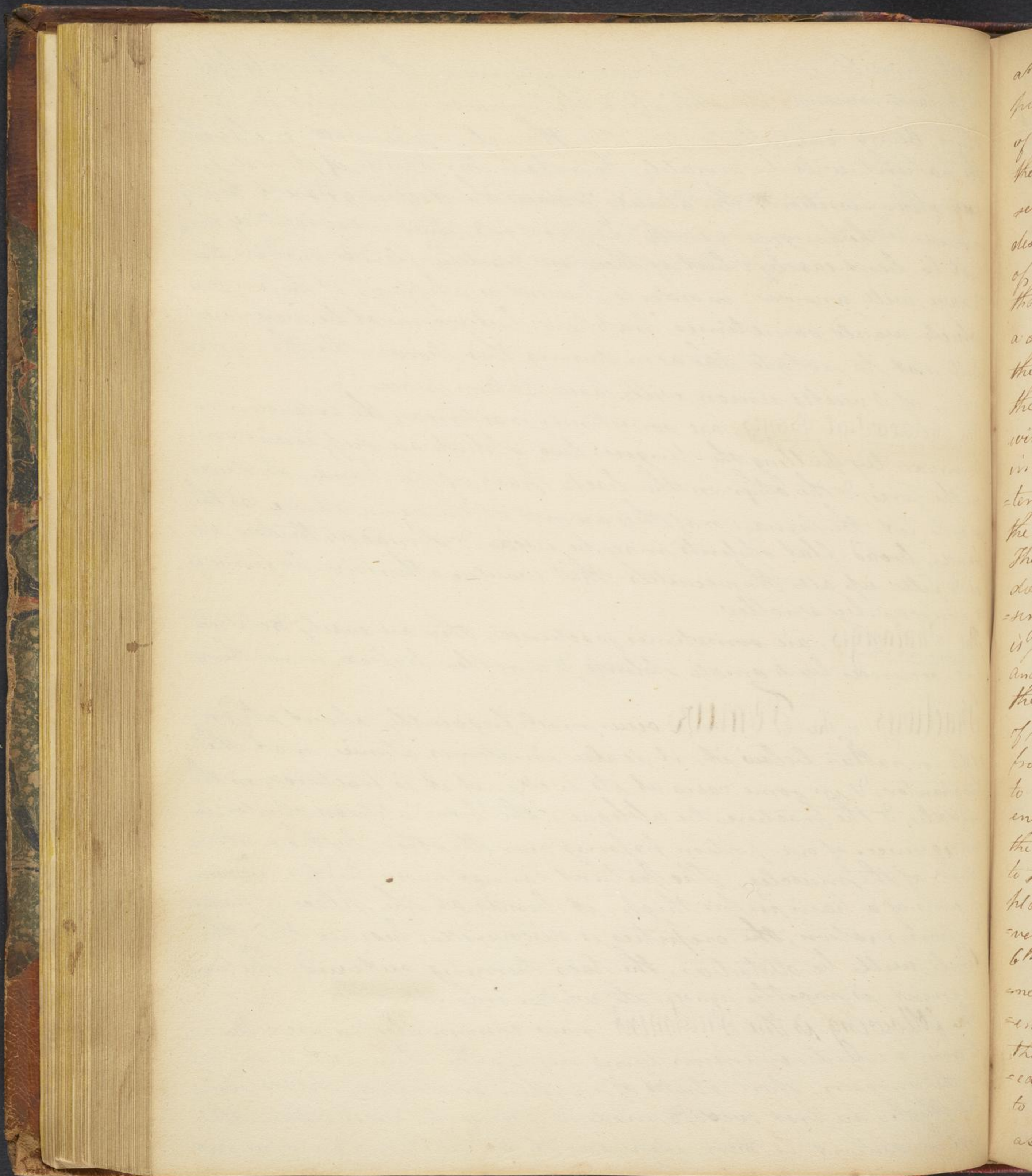
pinch himself whenever the arm is extended. A roller is to be
be passed round the splints, & the fore-arm supported by a
string being careful to keep the thumb up & firmest, or else the
the patient will be unable to rotate his hand, if it be in
any other position*. In about 7 days the dressings are to be re-
moved & the fingers gently flexed 2 or 3 times a day if they can-
not be bent easily: but if they are readily flexed once in 2 or
3 days will answer: in order to prevent a stiffness of the fingers
which would sometimes happen: but we must be very care-
-ful not to rotate the arm during this time. At the ex-
-piration of 4 weeks union will have taken place.

The Metacarpal Bones, are sometimes fractured, the extension can
be made by pulling the fingers: two splints are sufficient one
on the fore, & the other on the back part of the hand, shaped
so as to fit the hand: or if they are not of the same shape as the
hands, broad flat splints may be used, & spread with tow so
as to fill up all the vacancies that would otherwise be formed,
& secured by a roller

The Phalanges, are sometimes fractured, they are easily displaced
and secured by 4 small splints & a roller passed round them;

Fractures of the Femur occur most frequently about its mi-
-ddle, or rather below it, it is also sometimes above, or at the
trochanter, & in some cases at its neck, if it is fractured in the
middle, & the fracture be oblique, the bone appears shorter, in
consequence of one portion passing over the other, by the contrac-
-tion of the muscles, The patient cannot move his leg, he com-
-plains of a pain in his thigh, it bends at the place of fracture
& upon motion, the crepitus is discovered: besides this the
limb will be distorted, the toes turning outward. The lower
fragment is mostly under the upper one.

The following is the Treatment now commonly in use: the ex-
-tension & cadaver extension being made, the bone is to be replaced
by the surgeon, short strips of muslin or linen, placed under
the thigh, are brot over & made to decussate each other, at the
top a splint is then applied at the posterior & another at



at the anterior part of the thigh: these splints are made of 163
pieces of leather, glued to pieces of cedar, and are secured by pieces
of tape tied round the upper & lower ends, bundles of straw, were
then used. This method of treatment is not so convenient and
servicable as Mr Desault's, with a very few variations: I shall now
describe the operation & splints, bandages &c. that I most approve
of. The patient should be kept on a matras, similar to
that invented by the son of James Earl: the matras rests on
a sacking bottom, these both have a round hole cut through
the middle, opposite the anus, to let the faces pass thro into
the pan, which is to be placed under: the hole is to be filled
with a cushion, made to fit it. This is often servicable
in excoriations of the buttocks, hips &c, & when parts thro
ten mortifications from laying on them too long, by placing
the diseased parts over the hole, after taking out the cushion.
The patient should have but one pillow to prevent his slipping
downwards. There are several articles necessary for the dress-
ings which should be laid on the matras, before the patient
is put on it 1st 4 tape strings one laid just above the knees
and another midway between the knees & perineum, one at
the upper part of the thigh, & the last at the ankle. 2nd a piece
of muslin to wrap the splint in 3rd a splint that will reach
from the upper part of the thigh to the knee, & placed so as
to be immediately under the thigh 4th strap bandages long
enough to reach round the thigh, so as to lap a little over
the sides of each other, & placed so as to reach from the perineum
to the knee 5th a small piece of leather, spread with adhesive
plaister, & laid on the perineum, (this being previously shaved) to pre-
vent an excoriation from the counter extending band. 6th a silk handkerchief
laid so as to come under the peri-
neum & obliquely across the pelvis to make the counter ext-
ension. The patient may then be laid on his back upon
them. 7th A splint of the length of the thigh, to be plac-
ed on the anterior part of it 8th An other handkerchief
to be passed round the hind part of the ankle, & decussated
at the top of the foot, but below it, & tied to make the

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extension, the same precaution is necessary as on the perineum 165
9th A short splint  of this shape to go on the inside of the thigh
long enough to reach from the perineum to the foot and a long
one which will reach ^{from the axilla} to about 6 or 8 inches below the foot.

 1 the upper end excavated to fit easily in the axilla 2
the upper hole, through which the counter extending bandage is to be passed 3 the lower hole, over which the
extending bandage passes: which should be so far down as to be a little below the bottom of the foot
4 the hole through which one end of the extending bandage is passed & the other end to be carried
around 5 & when sufficient extension is made the two ends to be firmly tied, these two splints
should be made of wood to go on the outside of the thigh. The upper end
of this splint is to be excavated like a crutch, which should
be covered & stuffed so as to make it soft, & easy to the patient:
there are also to be two holes near its head, & one near the lower end
to pass the bandages thro': that are to continue the extension &
counter-extension: a small block is to be attached to the splint, a
little above the lower hole, which will keep the foot in its nat-
ural situation, when the extension is made. The extension and
counter-extensions being made (we may know when sufficient extension is
made, by the deformity disappearing, & the length of the limb, being the same as the sound
one) & the bones placed in their right situation, the long splint
previously rolled up in linen, is now to be applied to keep
up the extension, by passing the counter extending bandage
thro' the upper hole, & the extending bandage is to be passed
over the block thro' the lower hole, & tightened so as to make
the necessary extension: the counter extension may be made
more directly upward, by passing a small roller round
the anterior & posterior part of the counter extending band-
kerchief, & continuing it round the side of the sound limb,
& draw as tight as necessary: & by that means drawing the
large roller directly up from the perineum. The other
short splints are to be covered in the same manner & ap-
plied. Notwithstanding the splints are wrapped in linen,
there will be, when they are applied, some bare cavities
which are to be filled up with 2 bags of chaff, of the length
of the leg & about $\frac{2}{3}$ filled, that are to be laid between the
splints & the leg on each side, so as to fit nicely the unevenness

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of the leg, so as to keep it steady & easy. Chaff is preferred ¹⁶⁷
because it can easily be moved from place, to place. The short
splint is now to be laid on the fore part of the thigh: it should
be of paste boards & exactly fit the thigh. The four pieces of
tape are now to be applied round the thigh & splint. A very
strong bandage is now to be passed over the long splint & round
the body 2 or 3 times which prevents any motion. In this way
extension & counter extensions are kept up: & the patient having
many points to rest upon, by lying upon his back, is
much easier than in any other position. We should now ex-
amine the length of the limbs: if the fractured be shorter
increase the extension, but if sufficient extension is not ea-
sily made, we should desist & gradually increase the extension
so that it shall not be very disagreeable to the patient & in
a few days the leg will be brought to its proper length &
when the bandages get slack they should be tightened.
The fractured limb should not be drawn so tight at first
that the ends of the bones, come in contact, when the contraction
of the muscles is violent as it would cause great excoriation
but by keeping a moderate extension for a few days, the
muscles yield to the force & are easily overcome. This method
always proves successful, so that the fractured limb is
as long as the sound one, except in some cases of compound
oblique fractures. When excoriation takes place they may
be washed with a little brandy, which is an excellent reme-
dy. It frequently happens, in females, that the parts about
the perineum are excoriated by the irritation of the urine;
This is prevented by making a bag of buck skin & filling
it with wool, after which it is to be boiled in linseed
oil & should be applied to the perineum, under the coun-
ter extending bandage, before extension is made, it
is thus rendered impervious to the urine, which consequently
readily flows off. The heel often mortifies & sloughs
from the constant pressure that is kept upon it, by lying
so constantly on the back: this is to be remedied by making
a soft pad & piercing its middle with a hole

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over which the pulc is to be placed, & treated as in other cases, 169
Sometimes the femur is broken, near the head of the bone; or the
head itself may be fractured within the ligament; the troch-
anter may also be broken. The patient is often sensible of
the cracks, the instant it happens, & cannot raise himself
from the ground, walk, or stand: tho' Mr Desault mentions
2 cases where the patient could walk, the foot turns inward;
& very seldom tho' it is said sometimes to turn outward.
The surgeons can, pretty readily, extend the limb, if he
be called in soon after the accident; but more force will be
necessary if considerable time have elapsed; & I have some-
times been obliged to bleed ad deliquium. The extremities
being brought into contact, the crepitus may be perceived.
There is another circumstance by which the extremities of the
fracture may be found: place the fingers on the great tro-
chanter, & then rotate the limb: if the neck of the bone be bro-
ken, the rotation will appear to be on the axis of the bone
or as if it revolved on a pivot, but if it be broken lower down,
the trochanter will describe a much larger circle. The scia of the
bone revolving on a pivot, is stronger, the nearer the neck is
fractured to the trochanter. When the bone is luxated, if suffi-
cient extension is made to make both legs of an equal length,
the bone will always be reduced. — If the limb be much
inflamed, we must decline setting it, till the inflammation
has abated. In fractures of the cervix, Desault's splint will
answer exceedingly well, or perhaps better than the one I recom-
mended, in fractures of the middle of the bone. — This is made
just long enough to reach from the spine of the ilium to
6 or 8 inches below the foot; I has two holes at its upper
end, & one at its lower for passing the extending & counter-
extending bandages through. * The fractures of the cervix
heal as soon as any other part of the bone, unless when they
occur within the capsular ligament, & I have seen a fracture
of this kind, that did not unite in 8 years. So we cannot
always ascertain exactly fractures of the upper part of the
thigh, we should in all objections of this kind, apply

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the dressings already described. It is right to inform the 171 patient of the difficulty of union, of fractures within the capsular ligament, or even in any part of the neck of the bone: Desault says the dressings should be continued 55 or 60 days. I may say I have seen but one case of fracture of the neck of the thigh bone. In this case the apparatus was taken off at the expiration of 6 weeks, but the union was yet very soft: the patient could not walk for near a year & still limps. This patient was not old, & I think that only a sort of ligament had formed, between the divided extremities: in every case therefore, we should continue the dressings according to Desault.

Contusions on the buttocks, may be mistaken for fractures of the neck of the femur: they may generally be distinguished by the length of the limb being the same; but in injuries of this kind, the pelvis is often put into such a position, that the limb on the injured side, appears to reach two inches lower than the sound ones: we should therefore always draw a string from one superior anterior spinous process of the ilium to the other, if the string crosses the pelvis obliquely, we may be sure, that it is displaced. it would therefore always be well to measure from the process just mentioned. Sometimes this bone is broken just above the condyles, the lower fragment sloping obliquely upwards & backwards. When it is broken in this manner & when the condyles are separated the patient cannot bend his leg, & if the condyles are separated the crepitus can be felt by taking one condyle in each hand & rubbing them together. In this case there is such a broad surface of the fragments in contact, that there is not much displacement or deformity. but the fragments are often somewhat separated laterally: when it is broken transversely, splints applied each side are sufficient. Desault's apparatus answers this purpose very completely. a thick compress should be laid under the leg to raise the lower fragment. The leg should always be kept straight, because if it should become stiff, this



Desault, Spine with the addition of the block at the lower end. It reaches from the spine of the ilium to 6 or 8 inches below the foot.

this is the most convenient position for the patient to have 173
it ankylosed. I never but once saw a case of this kind and
that was at the Hospital; but this was a compound fracture
communicating with the joint & the patient shortly died; splints
on each side are likewise sufficient. ~

Dr. Hartshorn's method, which is sometimes more useful than
Desault's, & is certainly a very ingenious one, has for its principle
object, to make the extension & counter extensions, fall in a straight
line with the limb & thereby avoid any displacement by the
extension. One advantage is, preventing the foot turning out-
wards; another is, that when the fractured ends form an
angle anteriorly, it can, by this manner of dressing, be com-
pletely kept down by a compress. You will perhaps, think
that a bandage in the usual manner might do; but it will
be found insufficient. The chief use of bandages, next the
thigh is to prevent the action of the muscles, & may likewise
give some lateral support. ~

The BONES of the LG, are most frequently fractured about the mid-
dle; & when transverse, there is little or no displacement of the
fragments; but if the bones are broken obliquely, the lower
fragment passes behind the upper one, forming an angle
anteriorly. The tibia is more commonly fractured than
the fibula. They sometimes occur at the upper end, near
the head, & sometimes just above the ankle. If one bone only
is broken, the other keeps it in its proper situation, & if it
be the tibia, by grasping the limb, above & below, & trying
to bend the leg, the fracture may be ascertained. If it be
transverse, no displacement will take place. Sometimes in
transverse fractures the patients will be still able to walk,
& it requires very careful & minute examination to deter-
mine whether there is a fracture, or only a contusion; but
in general a fissure may be felt, on the anterior part, the
crepitus can be perceived & in almost all cases, the patient
points to some particular spot which is most painful
& which will be found to be the place of fracture. I once
had a patient who had his leg broken this way & after

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having his limb dressed & being in bed 3 days, felt so easy 175
as to suppose I had been mistaken, & that the limb had not been
broken: The bandages were therefore taken off: & the patient began
to walk about the room: Being myself confident of the exis-
tence of the fracture: I requested him to let me see him walk
he did so, but the bone presently bent under him, & he fell to
the floor, & had nearly converted it into a compound fracture.
In all cases, by taking hold above & below the fracture, & re-
moving the limb, the crepitus may be felt. When the tibia is
broken, the crepitus may be felt by moving the foot, there is
always pain on motion & the parts are so thinly covered that
the fracture can generally be felt.

Treatment The dressings should be laid on the bed as follows, 1st a piece
of linen, in which the outside splints are to be rolled 2nd a pillow
3rd a row of strip bandages that will reach from the knee to the
ankle & long enough to extend a little more than round the leg
4th 2 pasteboard splints, so that one will be on each side of the leg
these should be previously wetted & fit to the leg. ~
5th another row of strip bandages, of the same extent. The
patient is now to be laid with his leg on the pillow & dressing
& when sufficient extension & counter extension is made the upper
row of bandages are to be applied, then the splints, over them
the other row of bandages, while the extension is continued:
we should now wrap two firm wooden splints in the linen
for that purpose, one being on the outside and one on the in-
side, having the pillow between them & the leg: & are to be
secured by 2 tapes, one at the upper & one at the lower part,
& a bandage should be pinned to one side of the linen, in
which the outermost splints are rolled & folded round the
foot & secured to the other side to prevent it from falling
outward & downwards. A couple of hoops of a flour cask with
about one third cut out of each & crossed in the middle at
right angles are to be placed over the fracture to raise & support
the bed clothes. When the tibia & fibula are fractured
transversely, this method answers very well: but if it is
oblique, an angle will be formed anteriorly, & the leg will

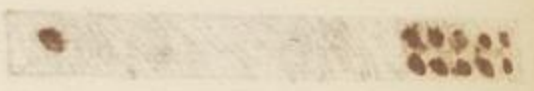
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be shortened by the contraction of the muscles in this case the 177
 counter extension is made by 2 pieces of tape, placed on the inside
 & 2 on the outside of the leg; then a roller passed round them below
 the knee, so as to secure them in that situation: this should ^{not} be
 drawn tight, or else the limb will be apt to swell, in consequence
 of the superficial veins being pressed. A silk handkerchief should
 be passed under the heel, & on top of the foot, decussated & carried
 below the foot & tied, to make the extension; a sufficient number
 of strip bandages, are to be placed under the limb, to reach
 from the ankle to the knee, & long enough to lap over each other. The
 extension & counter extension are now to be made, while the sur-
 geon wraps the bandages round the limb, after having placed
 the bones in their proper positions. Two splints with a number
 of holes at the upper end, & one at the lower end of each, are
 next to be placed, one on each side.

 Two splints of this kind one for the inside & one for the outside ^{A upper B lower end}
 they must be long enough to reach from above the knee, to
 below the foot: the tapes on each side of the leg, are to be passed
 thro' the 2 small holes at the upper end of the splint, & tied, while
 a bar is passed thro' the large one below the foot, & fastened; the
 extending handkerchief is tied to this bar, by which means
 the extension is completely kept up. 2 bags of chaff are
 then to be placed between the leg & splints, one on each side
 and the leg supported by a pillow. The greatest inconven-
 =ience resulting from this mode of treatment, is the swell-
 =ling of the leg occasioned by the bandage round the knee; the
 foot also often swells, in consequence of the lymphatics being
 pressed, as well as the veins. This mode of treatment will
 not do where any considerable swelling or inflammation
 exists, as it will tend to increase it. But this method
 is very convenient in compound fractures, as it can ea-
 =sily be opened to examine the wound, & to apply dress-
 =ings to it, & the extension & counter extension, can be preserved
 when the fracture is oblique: in one instance of this kind
 of treatment, the limb swelled so much, that I was

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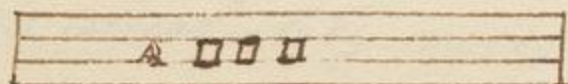
obliged to omit it and use Desault's apparatus, which will 179
answer very well, when we cannot apply the dressings just descri-
bed. Sometimes the tibia is fractured near the knee joint. In
this case seldom any displacement occurs, but the joint is very
apt to swell & is often difficult to cure. I have seen a case
of this kind: where all the antiphlogistic remedies had been
tried, as bleeding, purging, cupping, the application of leeches
&c without benefit, which was cured, simply by, extension,
counter-extension & the antiphlogistic regimen. - The patient
should be kept in bed a long time, as union does not take
place very soon. When they happen at the knee, the limb
should not be moved for 4 weeks, & the dressings should be
continued 6 weeks, & then the limb should be moved but
little & very carefully, in some instances it has been 4 or 5
months before complete union has taken place. When it is
fractured at the ankle, the same treatment is necessary.

The fibula is mostly fractured at the lower part, near the
ankle: but if it be broken by a blow it may be fractured
where the violence is applied. The fibula is sometimes broken
by an abduction of the foot, & the foot likewise luxated. The reduc-
tion of the foot may easily be accomplished by grasping it and
making extension. - In fractures of the fibula the bandages
should not be tight, for the same reason as in the forearm. A
splint is to be applied on each side of the leg, to steady the
foot, as the cure cannot be accomplished if it be allowed to
move, because the lower fragment will follow the motion
of the foot. In about 40 days union will be effected.

Fractures of the Patella are commonly transverse, sometimes they
are oblique, & I once saw one longitudinally. The transverse
are commonly occasioned by violent action of the muscles
& the oblique by external violence. When the patella is frac-
tured the knee becomes tumefied, & the superior fragment
is drawn up, while the lower part, is in its natural position.
The patient cannot go forward, because he cannot extend
his leg, but he can go backward, drawing his leg after him
or sideways provided he keeps his foot on the ground. To

prevent it from bending. When the leg is extended on 181
the thigh, the broken edges will sometimes come in contact,
& the crepitus may be felt. In longitudinal fractures, the
ligaments are so thin, that the vacancy can easily be felt
& the crepitus may be perceived, on rubbing the parts on
each other.

Treatment: In transverse fractures, the patient is to be laid
on a bed, & the trunk raised by pillows, so as to relax the ex-
tensor muscles of the leg; ~~But~~ it is better to raise the leg
sufficiently to relax the muscles, without elevating the body
at all; this will answer as well as a local depletion, & prevent
too great inflammation &c. When this is done the fragments
are to be brought close, & apply a bandage from the foot to the
knee; an assistant then holds the upper fragment down, while
another bandage is passed from the hip to the knee. The
fragments being thus brought together, a compress is to be ap-
plied above the upper fragment, & another below the lower
one, & secured by a roller passed round the knee nearly
in the form of 8, beginning above the patella, pass under
the poples, over the titia and lower compress, under the
poples again, & then over the knee joint & upper compress
& so on, pursuing the same course. Pieces of the skin are
very apt to get in between the fragments, which we should
be very careful to draw out if it should happen. The compresses
being secured, pass the bandage over the patella, so as to
cover it, to prevent the soft part from swelling. In this
manner the fragments can be kept in contact. The bandage
wrapped from the foot keep the parts from swelling; while
that from the thigh prevents its swelling, & counteracts
the disposition of the muscles to contract. To prevent
flexion of the leg, a splint reaching from the ischium
nearly to the heel is to be applied on the posterior part
of the leg: it should be covered with flannel & secured by
a roller. The splint should ~~only~~ reach to a little above
the heel.



A back view of the splint recommended by
& Dony to reach from the ischium to the heel. A The laces through which the bandages are passed

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The splints should be made of 3 pieces of wood of equal 183 size, which being laid with their edges close together are to be connected by a piece of leather glued to their whole surface, this can then be bent, so as to fit the leg much better than a single splint. If the bandages on the upper fragment be too tight, it may cause an absorption of the cartilages & union take place between the patella, & the humerus or tibia, & render the joint stiff. The bandages should never be applied tight if much inflammation exists, when the dressings become loose, the surgeon should tighten them. Union will take place in about 8 weeks. The bandages may be removed & very careful flexion made, in about 30 days, to prevent anchylisis, but the surgeon should keep the two fragments in their situation by pressing them together with his fingers. In longitudinal fractures, a compress is to be applied on each side & the flexion secured. Sometimes the upper fragment is drawn up 3 or 4 inches, & a ligament is formed, connecting the ends of the bones to assist the motions of the leg. Indeed we can seldom if ever bring the fractured ends of the bone so close as to form a bony union. This ligamentous connection, altho' it has been supposed an imperfection in the animal economy, is a surprising proof of the perfection thereof, for if a bone matter had been thrown out, & completely ossified, the knee would have been entirely stiff; but if by the ligament being formed, the patient may regain the perfect use of his limb, by gentle exercise of it daily. The patient should sit on a table, & swing his leg as much as possible: Although he will acquire strength slowly, yet by perseverance the muscles will accommodate themselves, to the length of the tendon, & the patient will walk as well as ever.

Sometimes some of the Metatarsal bones are broken, when this is the case a splint should be applied to the sole of the foot with something interposed between the foot & the splint to fit the inequalities of it: & it is absolutely necessary that the patient should be confined to his bed till union has taken place; & a roller should be passed from the toes to the knee.

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When any bone forming a joint, is forced out of its natural situation it is said to be luxated. It occasions a good deal of pain & causes a considerable alteration in the shape of the limb: in general if the surgeon is called in soon after the accident, it is easily reduced; & the greatest difficulty we have to contend with, is the contraction of the muscles. The ruptured capsular ligaments makes but little resistance, except in certain circumstances. In order for the reduction the patient should be restricted to low-diet, warm bath, & mechanical force: When there is a difficulty of reduction, the patient should be bled to weaken the contraction of the muscles, whereby we will be able to overcome them more easily: In difficult cases, I have found when the usual methods fail, that the best method is to bleed ad deliquium. — This completely destroys, all muscular force, & experience has proved it to be the best method, this mode was first practiced in this country by myself: When the patient will not submit to this, the nauseating dose of emetics, or an injection of tobacco smoke, or an infusion of tobacco, have proved useful, when other remedies have failed. Bayer says that intoxication produces the same effect, & I do not doubt it. The muscular contractions continue to resist the reduction about 3 weeks, after which the muscles become accommodated to their situation, the bone begins to form adhesions, which, with the contractions of the capsular ligaments, causes a considerable difficulty of replacement, so that it is often necessary to bleed ad deliquium animi, when the luxation has existed more than a month.

When we use force to reduce luxations we should be careful to apply it only to the dislocated joints, & the limb should be in a relaxed state. I shall now speak of particular luxations —

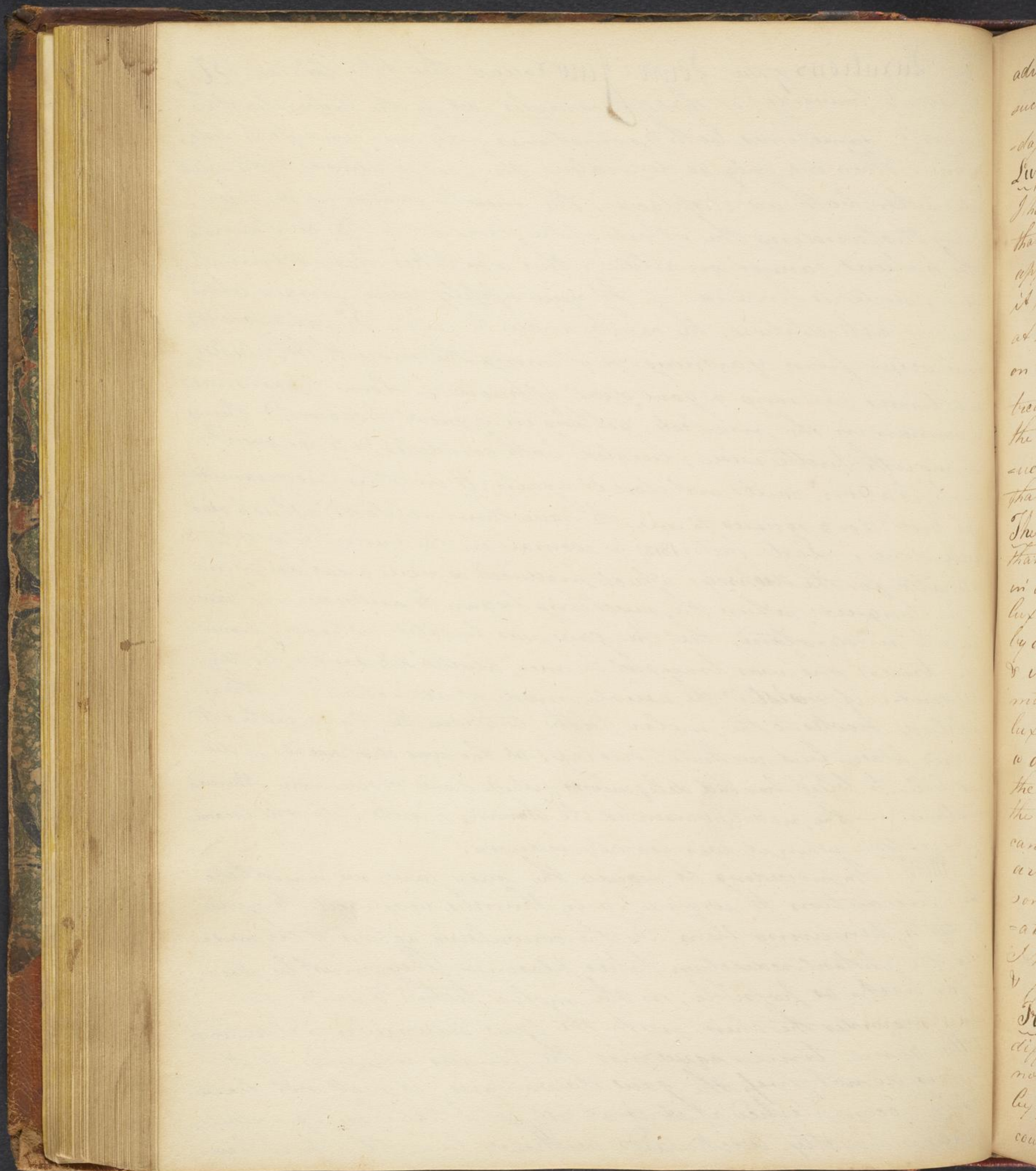
22nd Oct 1851

The first of the season has been a very fine day, and the weather is much improved since the last of the month. The wind is now from the south-west, and the sea is calm. The temperature is much higher than it was some days ago, and the sun is shining brightly. The crops are all well, and the harvest is going on as usual. The people are all well, and the country is in a state of great prosperity. The weather is now what we need, and the season is a very good one. The crops are all well, and the harvest is going on as usual. The people are all well, and the country is in a state of great prosperity. The weather is now what we need, and the season is a very good one.

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When Luxations of the Lower Jaw occur, they take place, 187
upwards & forwards, so that the condyles rest on the tubercles of the
temporis: sometimes both, & sometimes only one condyle is dislo-
cated. When one only is dislocated, the jaw is turned to the sound
side: when both are displaced, the mouth stands wide open,
notwithstanding the efforts of the patient to the contrary,
& the patient cannot swallow: this also takes place when only
one condyle is luxated. If you apply your finger at the
place of articulation, the cavity may be felt. Luxations of the
jaw occur from yawning, or opening the mouth too wide,
sometimes causing a good deal of pain. — Some years since
a woman in the market, getting in a great passion, & opening
her mouth pretty wide, luxated both condyles, & to her great
mortification, could not close it again: & in this predicament
was bro't 2 or 3 squares to me to have them replaced, which was
easily done. Last fall (1813) a woman in the country was
salivated for the dropsey, which produced a very great swelling
of her tongue: when the swelling began to subside, she gave
them to understand, that her jaw was luxated, which proved
to be true: she was brought to me, about 23 days after the
accident: it resisted the usual mode of reduction: I then
applied hooks to the molar teeth, to draw the jaw into its
proper place but without success: as she was dropsical I did
not like to bleed her, ad deliquium, (which should be done under other cir-
cumstances) — she readily consented to drink spirits, till she became
intoxicated, when it was readily reduced.

TREATMENT. In proceeding to reduce the lower jaw, we must take
the precaution to wrap up our thumbs, very well, to prevent
the teeth pinching them, by the convulsive action of the mus-
cles, the instant reduction takes place. — They must be placed
as far back as possible, on the molar teeth: & with the
fingers under the chin, push the jaw downwards & backward
at the same time squeezing the fingers upwards. If the
fingers do not press the jaw downwards, it will not be so
easily accomplished if it is at all. — I have seen great force
applied directly backward, without benefit. Some have



advised to give a knock under the chin: this may sometimes 189
succeed, but it is apt to break off the neck of the condyles. - No band-
ages are necessary after the reduction.

Luxations of the Clavicle may happen at either of its extremities.
I have never seen it occur at the sternum tho' I have no doubt that
that it may readily take place there, if a considerable force be
applied so as to push the shoulder forward & inwards; & when
it happens, the patient is unable to move his arms. - Luxations
at the scapula may be occasioned by the patient being thrown
on the shoulder, so as to press it downward. In both cases the
treatment is the same as that of a fracture of this bone. When
the scapular end is dislocated, the bandages must be contin-
ued a considerable time, or the shoulder will sink lower
than natural, & form a tumor on its top.

The Humerus is Luxated, at the shoulder, & occurs oftener
than any other bone, owing to its great latitude of motions
in all directions, allowed by its glenoid cavity. It is commonly
luxated downwards towards the axilla; & is mostly occasioned
by a fall on the shoulder: I have seen it luxated forward
& inwards, between the pectoral muscles & clavicle, but
mostly inside of the coracoid process. - It is said to have been
luxated backwards. - When it is luxated inward & downward
a depression can be felt above the humerus, between it and
the acromion process. If you put your finger in the axilla
the round head of the humerus may be felt, the patient
cannot put his elbow to his side; he cannot rotate his
arm, or raise his forearm, to his head, which is mostly
somewhat flexed. The patient commonly has an inclin-
-ation to rest his arm, on something that will support it.
I have already told you how to distinguish luxations
& fractures of the humerus.

Treatment. If the surgeon is called soon, there is but little
difficulty in replacing the bone, because the muscles do
not begin to contract immediately. I have reduced it
by placing one hand on the acromion process, to make the
counter extension, & pulling with the other to make the

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extensions. To apply greater force, it has been recommended 191
to fix a couple of rollers on the arm, just above the elbow, by
means of another roller, then turn the upper ends of them down.
But Mr. Hay's method, I think, is preferable, when the arm
is drawn out by an assistant, & counter extensions made by
another: place your hands under the axilla, & push upward.
at the same time suddenly push the elbow in towards the
side. If, by this means you do not succeed, bleed and deliqu-
esce. — If the patient be strong, this will do no hurt, & if
weak, there will be no necessity for it. This completely re-
moves muscular action. & the limb can be reduced with ease.
About 2 year since a man was admitted into the Pennsylvania
Hospital with a dislocated humerus: the accident had happened
about 3 or 4 weeks previous & the parts were so much swelled
that he had to remain about 10 days, before we could ascer-
tain, whether it was luxated or not. After trying all the usual
methods, with no effect. I bled him till he fell on the floor,
in a fainty fit, when the bone was reduced with great ease,
& I have repeated this method with the same success. After
a limb has been luxated more than 3 or 4 weeks, the mus-
cles accommodate themselves to the situation, & begin to form
adhesions. The best means of reducing the luxation, after
adhesions have formed, is by means of a compound tackle.
Take 2 roynas towels, & secure them in the middle, just
above the elbow, by means of a roller: turn their upper
halves down to the lower, & thro' their middle pass the rope
to make the extension: another rope to secure the tackle is
to be fastened to a firm place. To make the counter ex-
tension, a long strap, about an inch wide, stuffed at the
part which is to be applied to the shoulder, with horse-
hair or cotton, which is to be applied against the end
of the acromion process. & the ends brot round the body,
in a contrary direction, & made fast to some fixed place.
To prevent the strap slipping off, & excoriating the shoulder
a strip, or roller may be passed round it. by which it
may be kept in its place. To secure the thorax, pass a

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wide strap or belt round the body, securing it with a buckle 193
or otherwise: So this have a rope which may be held by an assis-
tant to keep the body in its place. — Thus fixed, draw the
rope to make the extension, & take care that the counter ex-
tension be made against the acromion process. In making
the extensions, the arm should be rotated, to separate the
adhesions which may have formed. The surgeon may have
a towel under the patient's arm & over his own shoulder
to draw the arm up, or he may put his arm in the axilla
& push the patient's elbow downwards with the other hand, using
the humerus as a lever. The bone has been lodged, in the axilla
for 6 & for 9 weeks, & been replaced: for it is possible to
displace a bone surrounded by a firm capsular ligament
from a natural, to an unnatural situation, & it is as
possible to bring it from an unnatural to a natural one.
But when the bone cannot be reduced we are not to despair
altogether, as a great many useful motions may still be
performed. — I knew a calveret maker, whose arm was
dislocated, & yet he followed his trade, & the only motion he
could not perform, was drawing his arm directly upwards.
I shall not pretend to describe all the machines that have
been invented, for reducing luxations, but only a few of them.

It has been supposed that a staple fixed in the
ceiling of the room, & the patient suspended from it, by
his arm would be productive of good effect. But it would
endanger tearing the arm from the chest, as no counter
extension could be made against the scapula or acrom-
ion. Another method is, grasping the arm, for making
extension (the patient lying down) then place the foot in the
axilla, to make the counter extension, & when you make
the extensions, press the arm towards the side, & your foot
will thrust the head of the bone in its proper place.
I saw Mr Hunter do this very successfully. Some ad-
vise hanging with the arm over a ladder: but none of
these methods are very good.

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The Fore-arm is Luxated, upwards & backwards forming 195
a protuberance behind the arm, & is kept moderately flexed. some-
times it is luxated laterally. The coverings of the parts are
so thin, that the surgeon can readily ascertain the nature of
the case. The patient cannot flex or extend his arm: the co-
ronoid process of the ulna, fills up the cavity, naturally for the
olecranon, & this is what prevents the reduction. When the art-
iculation is much swelled, we may distinguish it from a simple
tumor of the parts, by carefully measuring the length of the arm,
when, if it be a luxation upwards & backward, the diseased arm
will be the shortest, but not so if it be a simple tumor.
When the bones are reduced, the patient can immediately
flex & extend his arm. (A very strong exhortation to pay great attention to the
elbow joint).

Treatment: In order to reduce a luxation upwards & backwards,
an assistant should take hold, just above the elbow, & another just
above the wrist to make extensions. The surgeon is to take
hold just below the elbow, & at the same time, pull directly
backwards, to draw the coronoid process from off the humerus,
when the arm is forcibly enough extended, bend it towards the
body, which will in most instances be sufficient to complete
the reduction. When it is luxated laterally the surgeon should
press it into its proper place, which he will know how
to do, by his knowledge of the anatomy of the part.

Luxations at the Wrist, takes place forward & backward: it is
easily reduced by making the proper extensions, & pressing
the bones, at the same time, into their places.

The Fingers are Luxated, backward & upwards. This may be
known by the fingers being somewhat bent, & the patient
being incapable of flexing, or extending them, but as soon
as they are reduced, he can bend & straighten them: exten-
sion & bending them, will commonly reduce these luxations.

When the Thumb is Dislocated, at the second phalanx, it
is the most difficult of reduction of any bone of the body: exten-
sion has been applied so as to tear off the first Phalanx
and yet not reduce the bone.

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I had a case of this kind in a Lady, which was not very much 197
displaced, but which was of very difficult reduction; I pushed
& bent it about in a variety of directions, but without effect.
at last, when I began to despair of reducing it, the bone ac-
cidentally slipped into its proper place, but I do not claim
any credit for reducing it by any premeditated plan, for
I actually do not know how it happened: but when every
other method has failed, I would not hesitate to introduce
a couching needle through the integuments, & divide the
lateral ligaments of the joint on each side; or even to lay it
bare & divide it with a scalpel, when I daunt not, but
that it would be easily reduced, as those strong ligaments
form the principle obstruction.

Luxation of the Os Femoris. - It was formerly supposed
by some not to occur often, on account of the amazing
strength of the capsular ligaments & great depth of the ac-
etabulum, which was computed to be sufficient to bear
^(but that the neck of the bone must be broken)
1000 lb. I have however seen more luxations of the thigh
at the hip, than I ever saw fractures of the neck of this bone.
It is generally luxated so that the head of the bone passes
backwards, lodging on the dorsum ilii: & sometimes downwards
& forwards into the foramen thyroideum: it may also be lux-
ated immediately, backwards or outwards. When luxated upward
the limb is commonly about 1 1/2 inches shorter than usual:
if a bruise have taken place about the pelvis, it may influ-
ence the length of the limb, by causing the pelvis to be drawn
to one side. To ascertain if the pelvis be straight, draw a
string from one superior anterior spinous process ilii to
the other: if it cut the pelvis at right angles, it is straight;
then measure from the process to the knee, to ascertain the
length of the limb. It is necessary to know, if the pelvis
be straight, before we can ascertain the existence of a
luxation. If the joint be only bruised, the injured
limb will be the longest. When the luxation is up-
wards & backward, the toes will turn inwards, and
turning them outward causes great pain. If the

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patient cannot move the limb, & all the other symptoms be 199
wanting, this is enough to ascertain a luxation upwards &
backwards. It is by no means difficult, in ordinary cases to
distinguish between luxation & fracture of the head of the femur;
I mentioned the difference when speaking of fractures.

When the bone is luxated no crepitus is felt; & when the
convex is fractured, the foot always turns out, & is easily
turned inwards; but if it be luxated upwards & backwards
the foot cannot be turned out at all or without great pain,
& in all cases of luxation, the limb is not easily moved, &
when it is done it causes great pain, but in fractures it is
easily moved, & when drawn to its proper length, if the exten-
sion is removed, the limb is again shortened, but if it be
luxated, when drawn to the natural length, it will be
reduced, & does not become shorter again. — When it is lux-
ated downwards & forwards, it is mostly lengthened about
an inch, & the foot is turned outwards, & turning it incau-
ses great pain, the distance between the superior anterior
spinous process, & trochanter major is greater. When the bone
is luxated forward & upwards on the os pubis, it is a little
shorter, this is a very rare occurrence; only one case is men-
tioned by Desault, in this case the foot turned outwards.

Nearly the same Treatment, is required in all cases; that
is extension & counter extension: As the crum of the acetabulum
is large, an apparatus to dislodge the head of the bone, and
pull it straight from the body; this can be very well done
by passing a strap round the thigh close to the perineum
& an assistant getting on the table, & the patient lying on his
sound side; the assistant makes the extension directly up-
wards with the strap, & applies his knee, or foot, with the
shoe off, on the crista ilii, to make counter extension; ~~By~~
this means the surgeon will be enabled to use the femur as
a lever, the more effectually to raise the head of the femur
over the high crum of the acetabulum: making the extension
& counter extension in a right line with the body is required.
In luxations of the head of the femur, it is necessary to

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use considerable force to reduce it, & the best method is 201
by compound pulleys, when they can be had: but it can be
reduced by the assistance of men, & one advantage is that they
can desist at any instant required: In obstinate cases, how-
ever, where much force is necessary, the pulleys are mostly used.

When the luxation is upwards & backwards, the patient
is to be laid on his sound side, & the limb bended at the hip
& knee, to relax the muscles: a strap, for the purpose of making
counter extension, is to be passed over the perineum, & between
the scrotum & injured thigh, (having some soft substance between it
& the perineum) and fastened to a fixed body. Two strong
towels are next to be applied one on each side just above
the knee & secured by a roller to make extension. These cannot
always be fastened above, in fat persons: they may then be secured
below the knees: but it is best to confine the extending power to
the luxated bone. A pulley fixed to the towels can make the
extension with great force: during the extension, the surgeon
must rotate the bone to detach its heads: if this is insufficient
blood ad deliquium amissi. When the head is luxated into
the foramen thyroideum, or forwards, make the manual exten-
sion & counter extension, in a line with the limb, & at the
same time it is absolutely necessary to make it outwards
at right angles with the body. (For a method of reducing luxations dis-
tally forwards see a case in Coxe's Med. Museum Vol 1 (p. 8) communicated by Dr B. P. Hygie)
to effect this the patient lying on his sound side on a table,
has a strong towel between the thighs, close to the perineum,
an assistant is to get on the table, & take the towel, & ~~take~~
~~the towel~~ over his shoulders & pull outwards, while his
knee is placed on the crista of the ilium to make the counter
extension: meanwhile the surgeon rotates the limb: if
this is insufficient to draw the head of the bone and of its
situation, fix a pulley to the towel & pass a strong bandage
round the crista & fasten it to a staple. When the head
of the bone is on the pulley, the surgeon should bend
the leg at the knee, & grasping the limb below it, rotate
it, while the extension is making. — Desault

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thought that the contractions of the capsular ligament, must ²⁰³ prevent reduction: but I believe that almost the only cause of resistance in reducing luxations, is the contractions of muscles; for the same orifice in the capsular ligaments, that suffered the head of the bone to escape out of it, would be large enough to let it return. I never saw but one case of luxation directed backwards: the head of the bone probably passed through the laceration of the capsular ligament, & the neck of the bone was embraced by it, as a button hole holds the button. Extension did no good: I bent the leg directly up to the belly & then abducted it, with considerable force, & then by striking with the palm of the hand, on the trochanter major directly upwards, it slipped into the acetabulum with the greatest facility imaginable. In cases of luxations, the dislocated limb is sometimes longer than the sound one immediately after the reduction, & might mislead the young practitioner, who is not aware of this circumstance. If the bone is not reduced it will form a new socket for itself: - the proof of this is instanced in a girl, who fell & hurt her hip very much, so that she kept her bed several weeks: when the swelling that supervened, had subsided, her hip was found to be luxated: sometime after, she began to go about again. She fell again & hurt the other hip: when she recovered from this fall, she found that her legs were now nearly of a length: contrary to what they were before, & after she had acquired more strength, she was able to walk on crutches & gained strength in her hip every day. Shortly after she was taken sick & died. The hips were dissected & both found luxated: new acetabula were formed on both sides, which no doubt would have done very well, had she lived.

Luxations of the Patella very seldom occur: I have never seen but one instance of it: it was in a young Lady & caused by dancing: the patella had slipped over the external condyle, & could be felt there while the joint was very much distorted. By extending the leg & pressing the under side of the patella upwards & inwards, it easily slipped into its place. The limb should remain quiet for 60 days.

* When a patient complains of great weakness in the knee joint without pain - you are to use depletion both general & local - with rest & a horizontal posture - the antiphlogistic regimen is also to be strictly adhered to -

Luxations of the Knee Joint, occur very rarely: The tibia 205
is generally received on the external condyle: The leg is much
distorted. It is easily reduced, but is not so easily kept in its
place. Desaults long splint answers very well, for keeping
the bones in their proper situation. After they are reduced, the
patient should keep his leg in a state of quietude in bed for
8 or 10 weeks, until the ruptured ligaments are perfectly healed.*

Luxation of the Ankle rarely occurs. — A Lady, with high
heeled shoes on, was coming down stairs & stepped too far, so that
the heel of her shoe only, rested on the step: the weight of the body
bending the knee back, pressed the tibia forwards, off the astrag-
alus, on to the instep, in consequence of which the toes were
kept extended, & the malleolus was broken: I was not called till
swelling & inflammation had appeared, & could not exactly
ascertain what was the matter. She was bled & in about
3 days the inflammation & swelling subsided & I discovered
the nature of the injury. It was reduced by an assistant hold-
ing the tibia, while I caught hold of the heel & toes, & pulled
the foot forwards: & a splint was applied for the fractured
malleolus. The luxations of the ankle may be either forward or
backward: when it is forward, the foot is kept extended, the
heel projects farther back than usual, while the foot app-
ears much shorter: but if it be backward the very reverse
of all this takes place! & in both cases the patient cannot
move his foot —

For the treatment of S.W.M. I refer you to Boyer. If
the limb can be moved in different directions by the surgeon
or patient, the joint should be immersed in cold water
sometime, or cold water should be poured over it, after
which cloths wet with vinegar, should be applied &
continued some days, & kept at perfect rest during the
whole time, for if the patient walks, he is sure to induce
inflammation, if it is too soon. The limb should not be used
until it feels quite, or nearly as strong as ever: & it will be
dangerous to apply cold water, if the patient be menstruating
or liable to spasmodic affections of the breast, & if the patient

* In fractures of the fibres of any of the muscles - a bandage
is to be applied over it - rest & a horizontal posture if
on the lower extremities are necessary - a splint is
also to be applied -

⊕ warm water or cold water by itself

continued to exist, suppuration & hectic fever, & sometimes
the bone is actually absorbed; the patient is forced
to have the bone amputated & death often the consequence, Caries
of the end of the bone sometimes takes place, & amputation
is necessary for the recovery of the patient. *

Injuries of the Head may be divided into external & internal
external as they effect the scalp & integuments; & internal as they
affect the brain, & its membranes. They are of several kinds
1st Contusion 2nd Puncture 3rd Inflammation of the brain & its mem-
branes & 4th Concussions. I shall begin first with the scalp.
The injuries done to the scalp, are several & first of Contusions
When this occurs, with a rupture of the vessels, they pour out
their fluids, forming a tumor, & swelling, which has a puffy
feel; around this tumor there are hard edges, which impart
to the fingers a sensation of a broken bone, which is apt
to mislead the inexperienced, who are not aware of it, & induce
them to make incisions through the scalp, when they find the
bone sound, & thus produce a disagreeable suppurating
sore, & perhaps exfoliation of the bone. The best Treatment
is the application of vinegar in compresses to the part, & in
a few days the extravasated blood will be absorbed.
The scalp is sometimes Lacerated, & torn from the
bone for some extent, & under such circumstances it has
been advised, to cut off the loose portions, but it should
never be done. The part should be well cleaned from dirt
&c. & the flap placed in its natural situation, & kept
so by adhesive Plaster or sutures. It has been objected
to this, that abscesses would form, & the loose part have
to be removed at last; if they do form, they must be
opened, as in other parts, & it is better to risk a few
small abscesses, than to produce so great a deformity,
& perhaps cause exfoliation.
2nd In Punctured Wounds, the patient is often af-
fected with great pain, especially if the aponeurosis be
wounded; if inflammation extends to the pericranium

¶ When there is objections to this a listers generally
answers very well —

• Of late I have seen the most decided effects in the use
of emetics in this disease — they are to be used frequently

it is necessary to dilate the wounds, as the patient becomes 209
feverish. * I have seen inflammation of it occur in every kind
of wounds except incised. It has been supposed to occasion infla-
mmation of the brain & therefore trepanning has been advised
but I believe that this does not occur when the injury is con-
fined to the outside: for it is scarcely probable that the two
sides of a cavity, will become so violently inflamed at the
same time. Thus in violent inflammation of the villous
coat of the stomach, the peritoneal one is hardly ever in-
flamed & vice versa. Besides these, there is another kind
of effects of injuries to the scalp, which is severe & incessant pain
in the part: it takes place from the time of the accident.
I have seen contusions of the scalp which create great
pain, & continue a long time. The first case, of this kind,
I ever saw, was a Lady, who had received an injury over the
parietal bone, from the falling of a sash, which occasioned
great pain: the inflammation subsided in a few days,
but the pain continued; she used evacuates without any
benefit. When I first examined the wound, I thought the
bone was fractured; but on further examination, it was
found to be only bruised. I proposed an incision, which
was made through the scalp: the pain immediately ceased
& never returned. A young man received an injury of
the scalp, on the parietal bone, of one side, & at the same
time received a blow upon the other, great pain followed
it, which increased, & on the second day the pain was so
great, that his friends had to hold his head, to prevent the
ordinary sounds made by walking across the floor & the
throwing him into convulsions. Evacuators were used
but without effect: an incision was made thro the scalp in the
contused wound, by which he was much relieved, but the pain
returned in half an hour, on the other side: the bruise on the
other side, was also laid open in the same manner, & the
pain cured & never returned. Some cases of this kind
have resisted every treatment, & subsided only on retiring
to, & remaining some time in the country.

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Injuries of the Brain & its Membranes
1st Compression: When this happens, coma, nausea, vomiting, involuntary discharge of urine & feces, & loss of voluntary motion occur. The causes that produce this, are of two kinds 1st indentations of the skull & 2nd effusions of any kind of fluids into the cranium, either between the membranes & the skull, in the substance of the brain itself, or in the ventricles: & this may happen either with, or without a fracture of the cranium: The 2nd kind of causes are much the most numerous. — Fractures of the cranium sometimes occur, without any of the usual symptoms, even when the bone is depressed. There was an instance of this in the forehead, so that the little finger, might lay in the indentation, & yet there was no symptoms of any injury, but in all cases of this kind that I have seen, the injury has been over the frontal sinuses. When no symptoms of compressed brain appear the scalp should not be divided: but when they do occur, make an incision through the scalp, so that you can examine the bone, (if there is not already a sufficiently large opening), & if necessary relieve the compression, with the trephine. — It has been customary to cut off a portion of the scalp, but it is cruel, & of no use, as a simple or crucial incision is always sufficient to examine the state of the bone. If a fracture be found it is safest to make a perforation thro' the bone to relieve the dura mater. In compression, arising from effusion, the symptoms of compression do not always immediately occur, because the effusion is not always immediate. I once was called to visit a boy, who received a blow on the forehead from a stone, thrown across the street, the bone was fractured, & a little depressed, the pain was not so great at first, but that he went home & gave a history of the accident: but before I arrived he was severely attacked & fell from his chair & was supposed to be dead. His pulse & arteries were cold; the operation of trepanning was performed blood exuded from beneath the skull, which had occasioned

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the compression, & he was immediately relieved. —

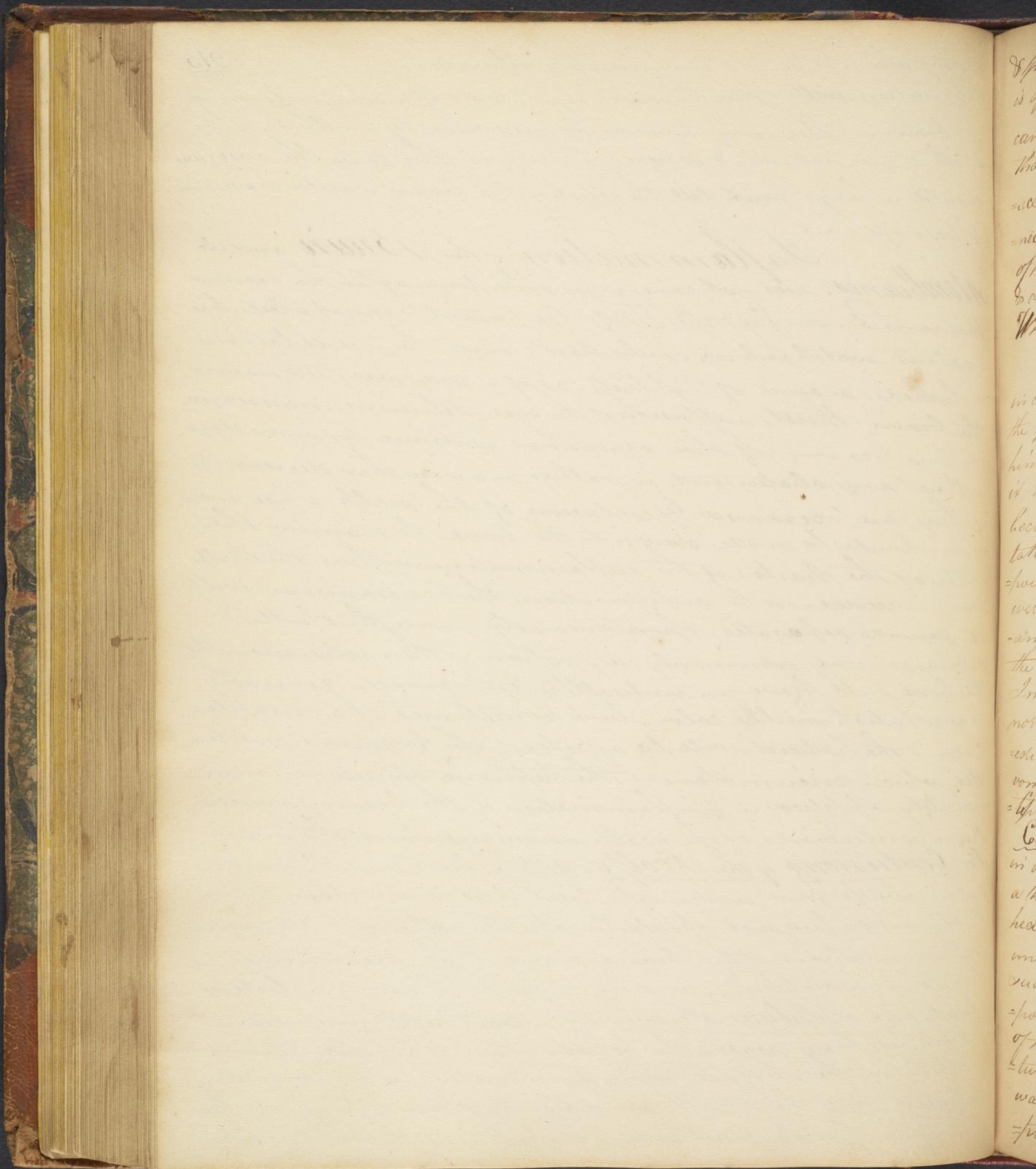
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Intoxications will often produce symptoms of a compression of the brain. They may however be discovered by smelling of the breath of the patient, & when we suspect this to be the case, we should always wait till the effects of the liquor would have time to pass off. —

Inflammation of the Brain and its Membranes, does not come on for some time after the accident producing it. — Symptoms: The patient cannot sleep, has constant watchfulness, pulse hard & tense, the face is turgid & flushed, a sense of tightness, as if a cord was tied round the brain, thirst, suffusion of the eyes, delirium, nausea, vomiting &c. — If these symptoms continue for some days without any abatement, or rather increase than decrease: & if they are occasioned by contusion of the scalp, a free incision should be made down to the bone, to examine the state of the parts: if the inflammation within the skull have proceeded on to suppuration, the pericranium, will be found separated, spontaneously from the skull, & discharge very commonly, a portion of this ichorous matter, the bone will have an unhealthy appearance, generally of a whitish milky color, but sometimes of a purple tinge, & the patient will be affected with frequent rigors: under which circumstances the trephine should be immediately applied. — Inflammation of the brain may come from contusions of the scalp, or concussions of the brain.

For Contusions of the Scalp, apply a bread & milk poultice & if an abscess form underneath, treat it as in any other place. In all cases, low diet should be strictly adhered to, to prevent inflammation of the brain, or any of its membranes: copious venesections, & purging should be used: Blistering should be applied all over the head & kept running. —

When we have reason to believe, there is a formation of matter, on the surface of the dura mater, in inflammation between it & the skull, an opening should be made thro' the bone for its discharge. Sometimes both the dura



of pia mater are injured: when it is the last, a supuration 215
is of no use, as the matter collected below the dura mater,
cannot be evacuated. When there is reason to suppose
that inflammations of the dura & pia mater have taken place,
from contused wounds, the patient should be trepan-
ned at the place of injury, which, by removing the tension
of the inflamed membranes, may prevent supuration
& a train of disagreeable symptoms.

When the degree of violence has been sufficient to
fracture the skull, we sometimes join the edges of the fracture
in contact, a question has then arisen whether we should trepan
the patient or not. Mr. Pott who has taken great pains to inform
himself of the nature of injuries of the head, is of opinion, that
it had better be done immediately: & this is certainly the safest
because there is a great risk of inflammation & supuration
taking place: another inducement is, that the fracture is com-
pound, for if it was not, we could not ascertain that the edges
were in contact. This makes it necessary, but when the in-
flammation was not great, I have seen supurations of
the dura mater avoided, by the antiphlogistic regimen.
In simple fractures of the cranium, when the brain is
not compressed, the trephine should not be applied im-
mediately. In all injuries of the cranium, we should employ
vomits, purges, venesection, a low diet, & in fact a strict an-
tiphlogistic regimen, to prevent inflammation.

Concussion, sometimes produces the symptoms of compression
in other cases it does not. It may occur from jumping from
a height, on a hard floor, from falls, or violence done to the
head. — In wounds of the scalp, when the patient becomes
immediately senseless, or delirious, beginning a sentence &
suddenly breaking it off in the middle, it has been sup-
posed that the brain is shaken: but I doubt whether some
of the vessels in the inside of the cranium are not rup-
tured. On examinations in some cases, where the brain
was supposed to be concussed, I have found the vessels ru-
ptured: & in other cases they were not. In these cases

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no benefit is derived from trepanning: general remedies should ²¹⁷
be used, such as, the antiphlogistic plan, Venesection, low diet
blisters, & if these fail, mercury, so as to excite a gentle ptyalism
stimulants should be avoided: as a general rule, I believe
it would be right, in contusions, to pour cold water over
the head some time, by which means, the effusions will
in a great measure be prevented. — I would recommend
that you all read, Pott on injuries of the head. —

I will now describe the mode of operating with
the trephine. First remove the hair, by which we shall
be able to examine the injury of the scalp: next make an
incision thro' the scalp, for which purpose a scalpel the
handle of which is capped with iron, & let a piece of iron
like a screw driver project a little in order to clear the bone
will be found fittest. — In laying the bone bare, take
notice, whether it be fractured, or whether a groove made
by some of the vessels does not appear: if it be the latter, the
edges will be smooth, if the former sharp. — If the bone
be depressed, it must be elevated, by trepanning: the cen-
ter point of the trephine, must be placed on a sound part, or
it will tend to depress it more: When we have penetrated to
some depth, we should be careful to remove the center bit, so
that it may not perforate the dura mater. —

When you suppose you are nearly thro' the bone, the hole
should be well cleared out, to examine if any place is nearly
cut through, for this purpose a common tooth pick answers
very well: you may likewise have recourse to your elevator,
& try if you can raise the enclosed piece, (this should often be
done towards the last.) If you find it nearly through on one
side, lean your instrument to the other. It is best to
force the piece out, with the elevator, before it is quite cut
through: as there will be less danger then of injuring the dura
mater: & any spicula of remaining bone, may be broken off
with the elevator. A saw may be used after the trephine
where long depressions of bone require it, because to use
the trephine again, would remove too much of the

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sound parts of the skull. When symptoms of extravasation 219
within the cranium, occur from external injury, a perforation
should be made, through the skull to evacuate the effusion.
When blood is collected between the dura mater & skull, a
hole may be made, to let it out: Sometimes the effusion is
small, at other times, it is of great extent, & the dura mater
lying close to the perforation prevents its escape, a spat-
ula introduced between the dura mater & skull, will suffer
the blood to flow out. Sometimes an effusion happens &
upon removing the bone, instead of a flat surface, a convex
one is presented, sometimes rising up so as to fill the
opening: but no motion of the brain will be perceived. These
are not symptoms of extravasation between the lobes of the
brain, for if this was the case the motion of the brain
could be perceived. I have never seen the dura mater
punctured, & the patient recover: therefore when it can
it should be avoided, I have cured an effusion in the brain,
by the antiphlogistic regimen, & bleeding 4 or 5 times a day
ad deliquium animi, for 5 days: which I believe would not
have been the case had the dura mater been punctured;
when this operation is performed, a fungus rises from the
wound, suppuration takes place at its root & the patient
dies.

After the operation of trepanning is gone through
bring the edges of the scalp within an eighth of an inch of con-
tact, & then apply a poultice of bread & milk, which is the
easiest application. Lint is not a good dressing, nor should
any greasy application be made, as this would prevent
the discharge of matter: the poultices should be continued
till granulation appears, & then dress it with simple
cerate. The trepanning in this case, only relieves the
compression of the brain: this done we must guard a-
gainst inflammation, by bleeding, cathartics, low diet
&c. The antiphlogistic plan, should be persevered
in while any symptoms of coma continue: & in
depressions of the bone, the edges of the ~~abscess~~

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scalp, where the brain is completely relieved by elevation 221
may be drawn together, to unite by the first intention, as it
will take a much longer time to heal; if it be punctured &
suppurate & granulate. In all injuries of the head, we should
be very careful not to make any stimulating applications,
as they would tend to increase the disease; it may however
be right to apply warm water to the extremities, while they re-
main cold.

Diseases of the Eyes

Inflammation of the Eyes, may take place, ~~in the eyelids,~~
either in whole, or in part; in the tunica conjunctiva, or in the
globes of the eye, either in its anterior or posterior part; inflam-
mation of the eyelids, sometimes causes an extravasation of serum
into the cellular texture, swelling the part very much, so that
the patient cannot open his eyes. the skin becomes of a scarlet
color; this frequently comes on in the night. The patient
supposing it to arise from the bite of an insect; it is how-
ever, not easy to ascertain what is the cause, unless when
it arises from mechanical violence.

Treatment. In general, if there be much inflammation,
blood-letting should be used, which, with the exhibition of a mer-
curial purge, & a low diet, will mostly answer the purpose,
if this is insufficient, the application of camphor or brandy
may be tried; the best way of doing this is to dip rags into
them wring them out, & apply them over the eyes. The discharge
of fluids, in most cases of inflammation of the eye-lids is
but small. Sometimes the edges of the eyelids become exco-
riated, & discharge a viscid, purulent matter, agglutinating
the eyelids, so that the patient has to wash them in the
morning before he can open them. The general opinion
is, that it is owing to the ulceration of the ducts of the Gland.
Mollisima. I however, believe it owing to ulceration
seated at the roots of the hairs, resembling, in this respect,
Tinea capitis; a proof of the correctness of this opinion is, that
the hairs have been drawn out & the patient got well.

History of the City

Treatment. A solution of lapis infernalis has been advised ²²³ taking care to wash it off afterwards, so that none of it may get into the eye, this is a harsh remedy. - Spermacete has been used with advantage. The most general remedy is a solution of Sacc: Sat: or unguentum citrinum. - I have however found that the unguentum spici, applied between the edges of the lids, is the best remedy: when this fails drawing out the hairs has been useful. A girl about 10 years old was cured by this ointment in about 2 weeks: she had been affected with inflammation & ulceration of the eyelids for 9 years. -

When the Tunicæ Conjunctivæ is inflamed, it becomes red owing to the increased size & action of the vessels, which were before pellucida, but now admit red blood: the eye waters exceedingly: the patient cannot bear the action of the light: the pain is of a burning kind, causing a sensation of extraneous matter, in some instances, the pain is not confined to the eye, but affects the forehead: Sometimes the inflammation is in a pimple or speck, which may be situated in the gland or cornea. The only difference in their effect is, that if it be situated in the latter place, it obstructs vision. Inflammation of the conjunctiva: often spreads over the whole cornea, throwing out coagulable lymph: if not soon cured, leaves a film behind it, obstructing the sight of the patient: & the pimple just mentioned, if not soon cured, leaves an opaque speck behind. The inflammation of the corners of the eye, causes an extravasation of the coagulable lymph occasioning the disease called inguiss. -

The Injuries done to the Eye, which occasions inflammation, are 1st Mechanical, as wounds, sand getting into the eye, trichiasis &c. 2nd Acrid substances, applied to the eyes, as lime, acids, smoke &c. these often occasion blindness. 3rd Too strong light. 4th Too much exercise of the eye in viewing minute objects: 5th cold: 6th Intoxication 7th Small pox &c. inflammation often occurs without our being able to assign any reason for it. -

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Inflammation of the eyes is sometimes produced by the 225
matter of Gonorrhoea being applied to them: this is a rare oc-
currence: but when it proceeds from this cause it is mostly
very bad.

Inflammation of the Globe of the Eye: may occur, either before
behind the crystalline lens: it is attended with great sensibi-
lity, pain & fever: when it is in the anterior chamber of the eye,
there is not so much pain, as when it occurs in the posterior.
The fevers run very high, & generally if it be not soon relieved
the sight is lost. - The first case of this kind I ever saw, the
patient died.

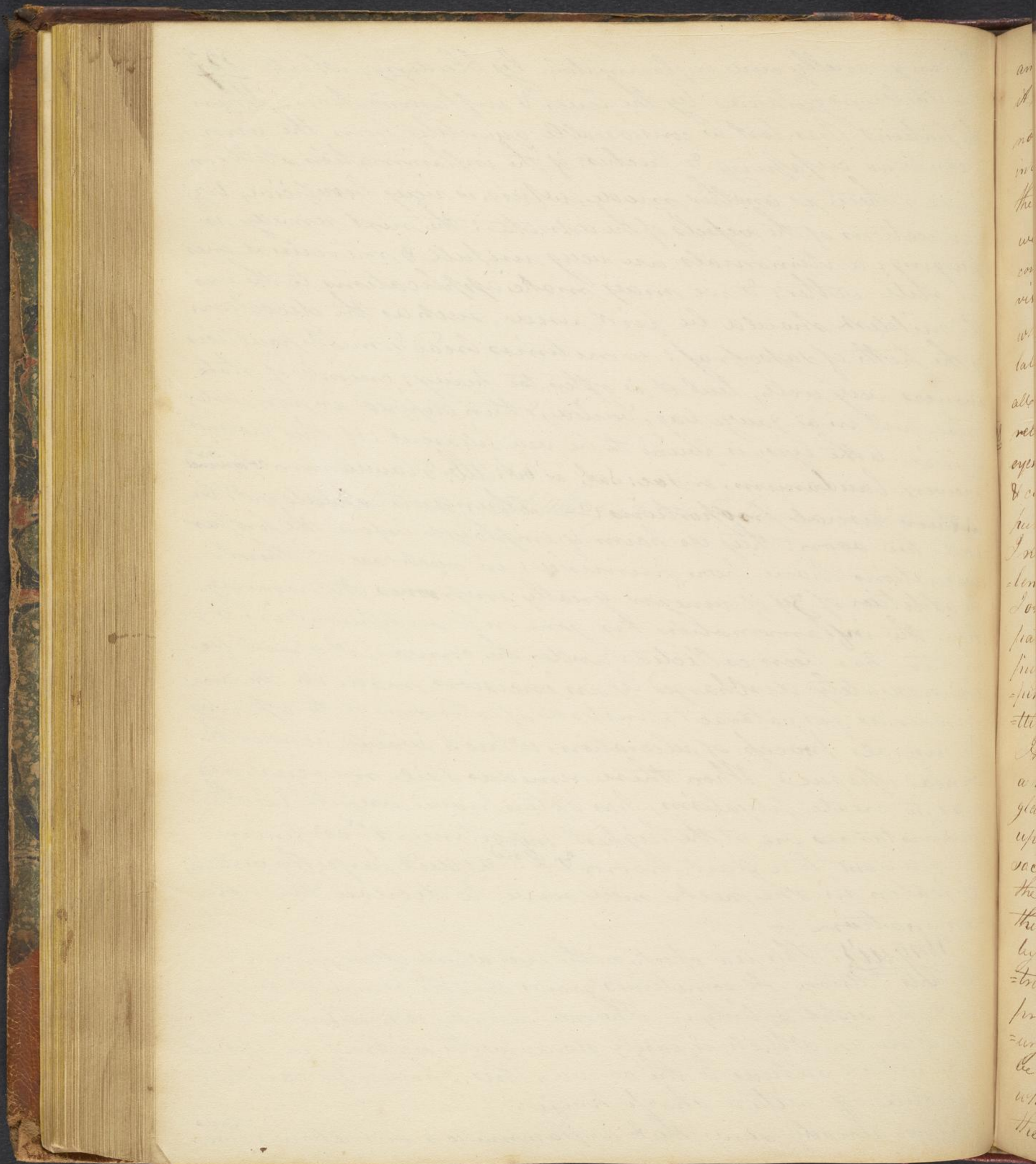
The first thing to be done in the Treatment, is to remove
all mechanical violence, & avoid the remote cause. If it be
produced by some extraneous matter, getting between the lid
and eye, it must be wiped out: a piece of soft rag wrapped
round a probe, & passed between the lids, will mostly
disengage it: should this be unsuccessful, water may be
injected into the eye: if it still remain, by inverting the
eyelid, we may examine it, & move away the irritating
substance: if it sticks in the corner of the eye, it will not be
easy to see it, as the eye will roll about incessantly, & can-
not be held still by the patient: a speculum, or the
handle of a pair of scissors will enable us to hold it
quiet, so that we can examine it, & move away the off-
ending objects with the point of a lancet. In trichiasis
inflammation occurs from the hairs of the lid growing
inwards: when this is the case, pulling them out produces
a cure. But the tarsus itself, is sometimes turned in-
wards: it may be turned out & divided: or a piece of
the skin of the lid may be cut out, taking care not to
divide the conjunctiva, & the divided edges brought into
contact, & kept so by the interrupted suture: When this
does not answer, we may entirely cut away the tarsus
this will not occasion as much deformity as an infl-
amed eye, that is constantly shedding tears: & has been
performed with complete success by Dr. Dorsey.

℞ Sacc: Lat: gr 5 vit: Ale gr 3 Liquid Laudanum ℥ij Aqua ℥iv

We can generally cure inflammation by bleeding, which ²²⁷ should be regulated by the fever & inflammation; When the patient has lost a considerable quantity from the arm. he can bear cupping & leeches: if the inflammation still continue, there is another mode, which is very beneficial, viz: Scarifications of the vessels of the adnata: the next remedy is purging: antimonials are very usefull & mercurial ones are still better: & we may make applications to the eyes the mildest should be first used, such as the decoction of the rith of sassafras: sometimes bread & milk poultices answers very well, but it is often too heavy: crumles of potato bread, put in a gauze bag, boiled, & then dipped in rose water, applied to the eyes, is found to be very pleasant: if this does not answer, laudanum, or Sac: Sat: or Vit: Alb: & laudanum combined in their usual proportions: Astringents should not be used too soon: they do harm if employed before the proper evacuations have been performed: in such cases I think the addition of ʒij of vinegar greatly improves the remedy. When the inflammation has gone on to suppuration & matter has been collected under the cornea, it should be immediately discharged by an incision, made in the same manner as for cataract, instead of allowing it to open by the usual process of ulceration, which would render the cornea opaque. When these remedies fail mercury used so as to create ptyalism, has often proved usefull. 3 other circumstances are of the highest importance 1st confining the patient to a dark room & 2nd a diet perfectly vegetable. 3^d seaton in the neck may serve to decrease the inflammation -

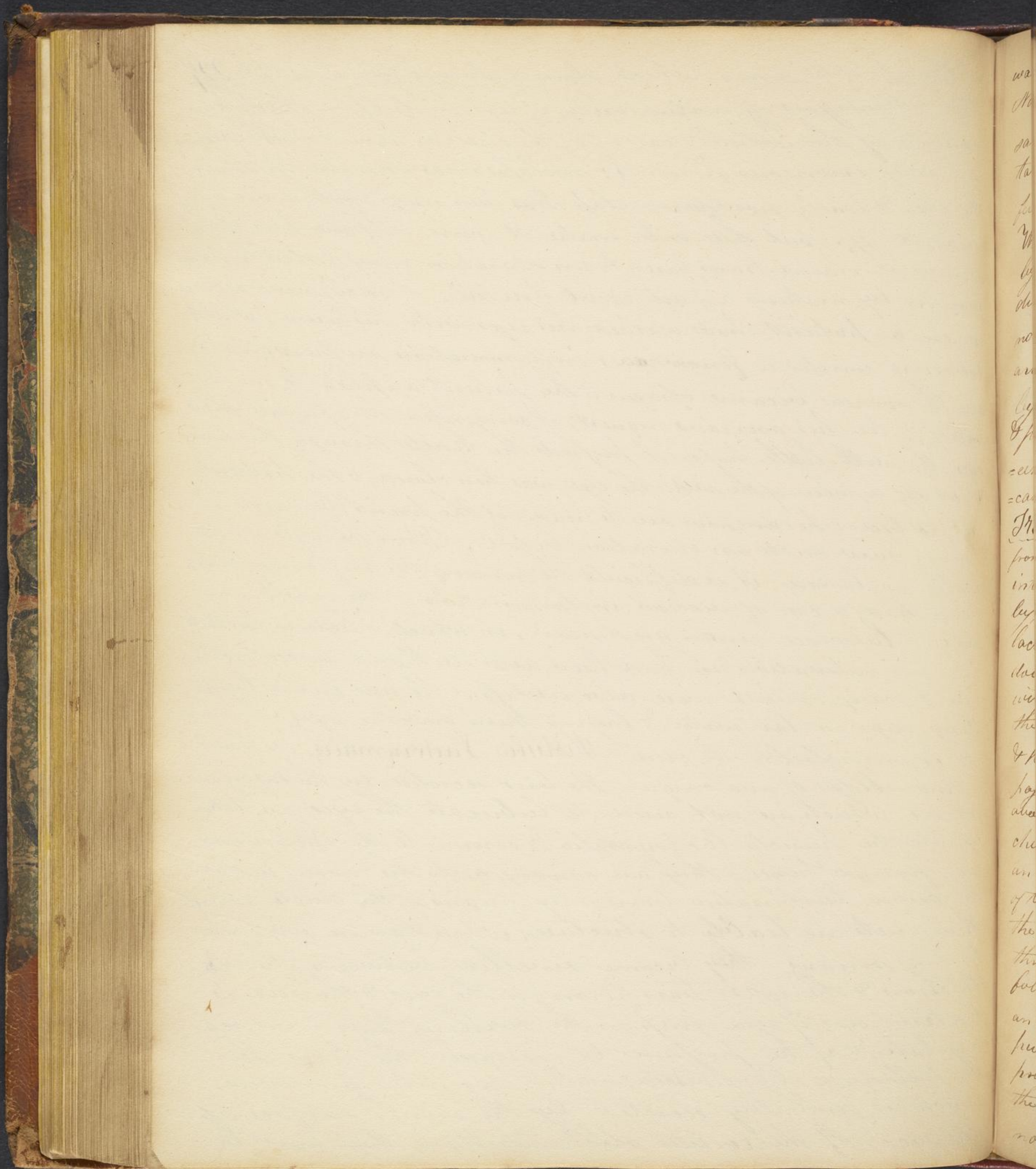
Unguis. This is a speck on the eye which often spreads & obstructs vision. It sometimes grows over the cornea so as to prevent the sight entirely. - The only remedy is to dissect off the membrane, which is easily done with scissors, except that part which adheres to the cornea, this should be carefully dissected off with a sharp knife.

I have already said that inflammation sometimes ^{2d} reduces pro-



an opacity of the Cornea, which almost always remains, but 229
It sometimes goes off voluntarily, if left to itself. Mistaken
notions of the nature & cause of the disease have led Physicians
into very erroneous practices: molasses has been dropped in
the eye, & finely powdered glass has been used with a view to
wear it off, but they only make it worse. If any part of the
cornea remains transparent, an operation may possibly restore
vision, by making an artificial pupil. I once saw a case
where a patient had washed his eyes with his urine, whilst
laboring under a Gonorrhoea; inflammation supervened &
all the cornea became opaque: the patient applied to me for
relief, & by his anxious request, I consented to operate on his
eye, tho' with little hope: I pressed the knife through the cornea
& cut off a piece of the iris: the eye was then closed, & the patient
put to bed: he can now see to read, if the print be large.
I never saw such an operation before. When the eyes are vio-
lently inflamed, it is difficult to remove the inflammation.
I once had a case of violent inflammation of the eyes: & the
patient labored under great pain, in which, bleeding, leeches,
purging, salivation &c. had been used without success, cup-
ping & scarifications were also useless. He was cured by ap-
plying rags in tar-water, & laying them over the eyes.

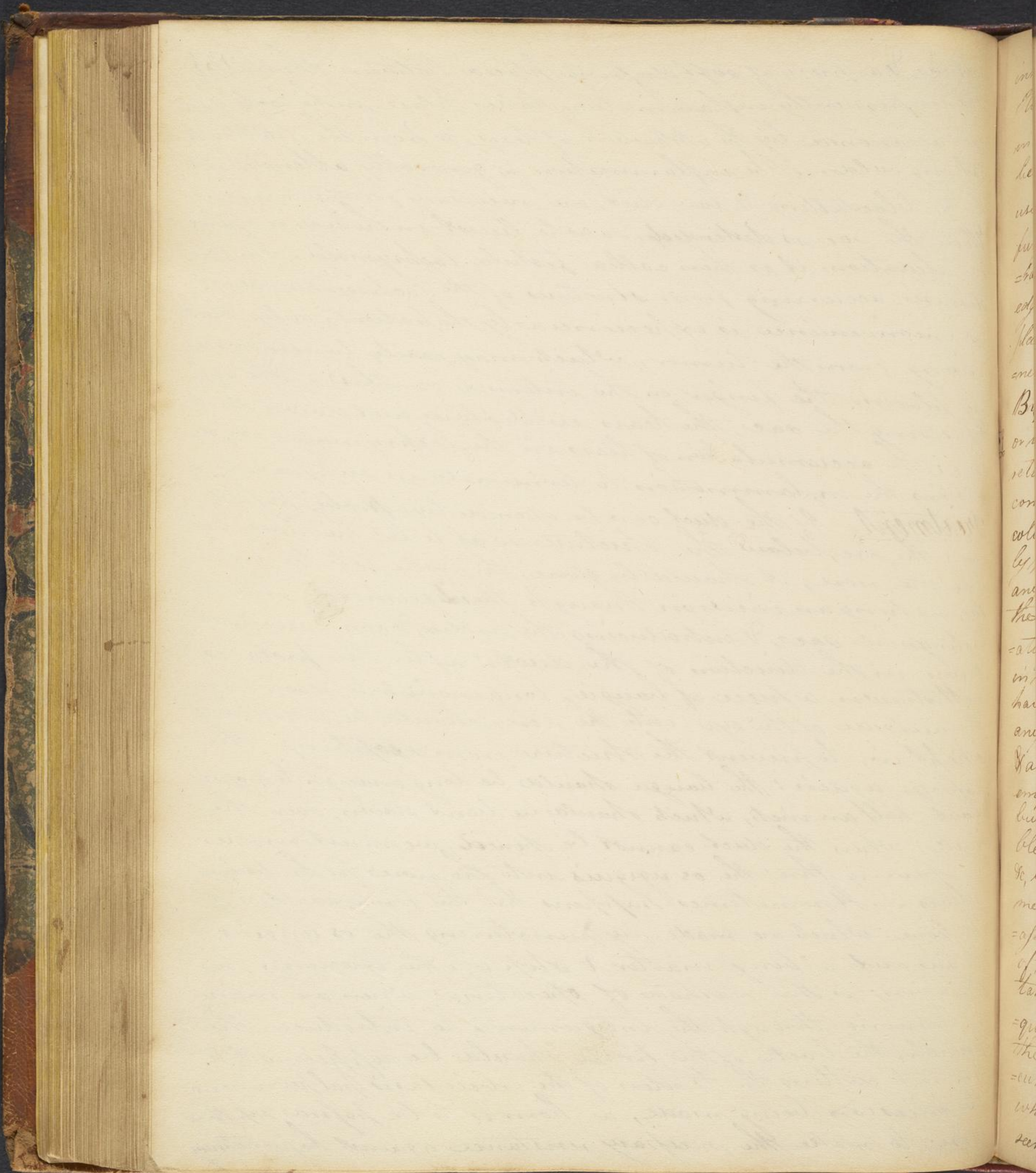
It is impossible to cure Fistulae Lachrymalis, without
a knowledge of anatomy. The tears secreted by the lachrymal
glands, which are not used to lubricate the eyes, are taken
up by the puncta lachrymalia, & carried to the lachrymal
sac, from whence they are conveyed to the nose, just at
the lower termination bone, by means of the ductus ad nari.
These ducts are liable to stricture: when they are stopped, or
by any means, they become swollen between the ob-
struction & the eyes: tears form in the eyes, & the sac is
protuberant: if you press on the swelling tears will re-
-urgitate, & if the pressure be increased, the tears will
be followed by a viscid matter, resembling mucus,
which is probably secreted by the inner surface of
the sac. If the eyelids stick together, they must be



washed, & a piece of soft dressing placed between them. 231
Not unfrequently inflammation takes place in the lachrymal
sac, occasioned by the obstruction of tears, or from the patient's
taking colds. The inflammation is generally attended with
fever, bloodletting & low diet, are necessary for the cure.

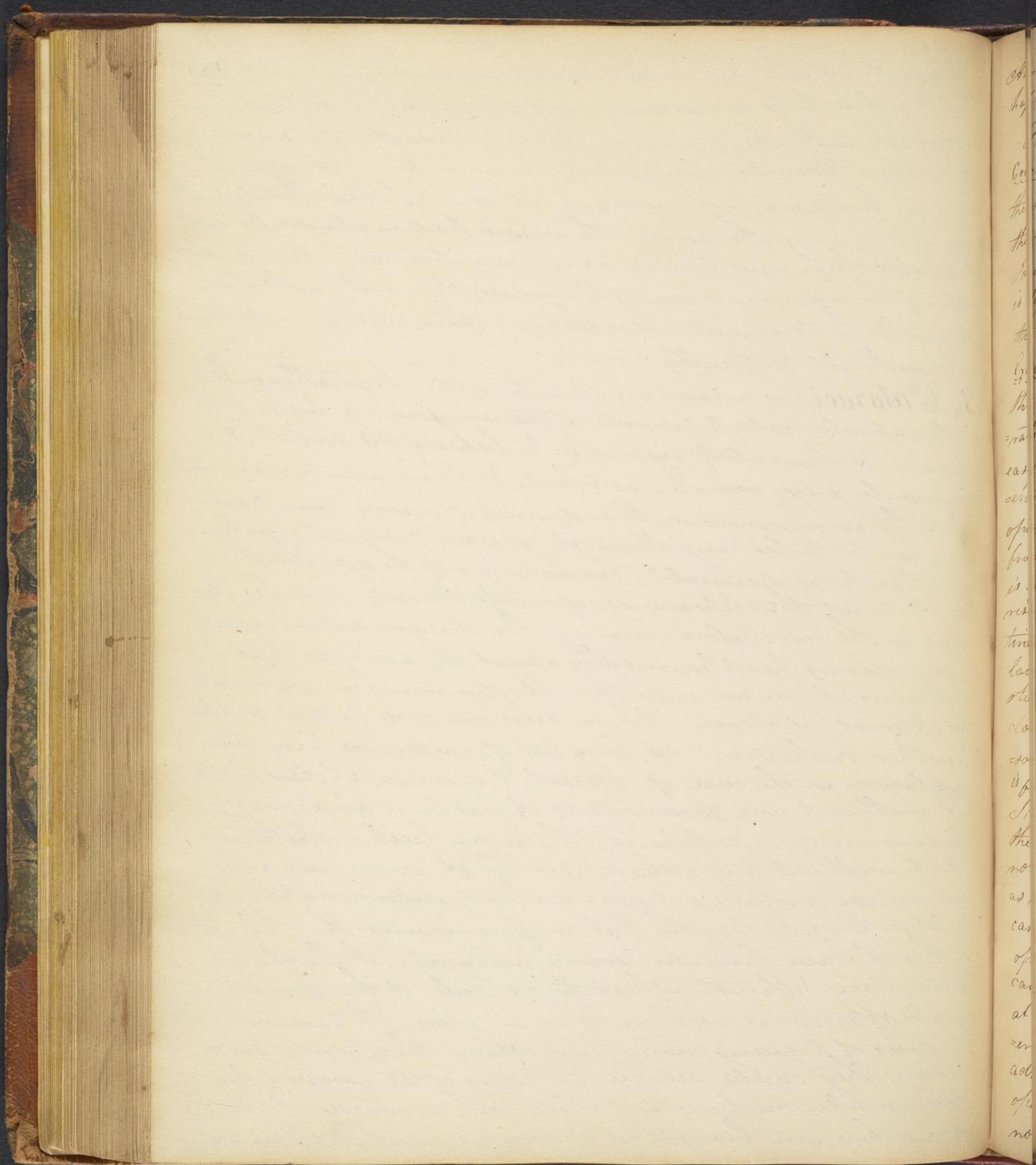
When the sac is distended, so as to burst in the eye, or opens
by ulceration, it is then called *fistula lachrymalis*. In this
disease, occurring from stricture of the lachrymal duct,
no inconvenience is experienced by the patient, only that
arising from the tumor, which may easily be removed,
by placing the finger on the internal canthus of the eye,
& pressing the sac, the tears will flow out down the cheek.
The accumulation of tears in the lachrymal sac, occasions
the inflammation to terminate in suppuration.

Treatment. If the duct can be opened by a probe passed
from the sac, below the stricture so as to let the tears flow
into the nose, it should be done, the probe is to be passed
by making an incision through the integuments into the
lachrymal sac, & introducing the probe, & continuing it
down, in the direction of the duct: after the probe is
withdrawn, a piece of bawbie, long enough to reach from
the outside of the eye into the nose, should be introduced
& kept in, to prevent the stricture from stopping the
passage again: the bawbie should be long enough to project
about half an inch, which should be bent down, over the
cheek: when the duct cannot be opened, we must make
an opening thro' the os unguis into the nose for the discharge
of tears. - It sometimes happens that the fractured edges of
the bone, which are made by puncturing the os unguis
throw out a bony matter & stop up the opening. The
following is the method of operating: when we make
an opening through the integuments to introduce the
punch, the back of the knife should be uppermost, to
prevent cutting the tendon of the orbicularis palpebrarum;
the incision being made, a horn is to be passed up the
nose, to make the necessary resistance against the puncturing



instrument, which is a hollow punch invented by Mr. 233
Hunter: it is to be introduced into the incision, till it comes
in contact with the os unguis, through which the opening is to
be made. When the aperture is made in this manner, the
use of a leucie is not necessary: it is sometimes attended with
fungus & caries of the bone, the carious portion should be ex-
tracted, & the fungus treated as in any other part, Having the
edges of the wounds in contact, & secure them with adhesive
plaster: & the tears will flow through their newly made chan-
nel without difficulty.

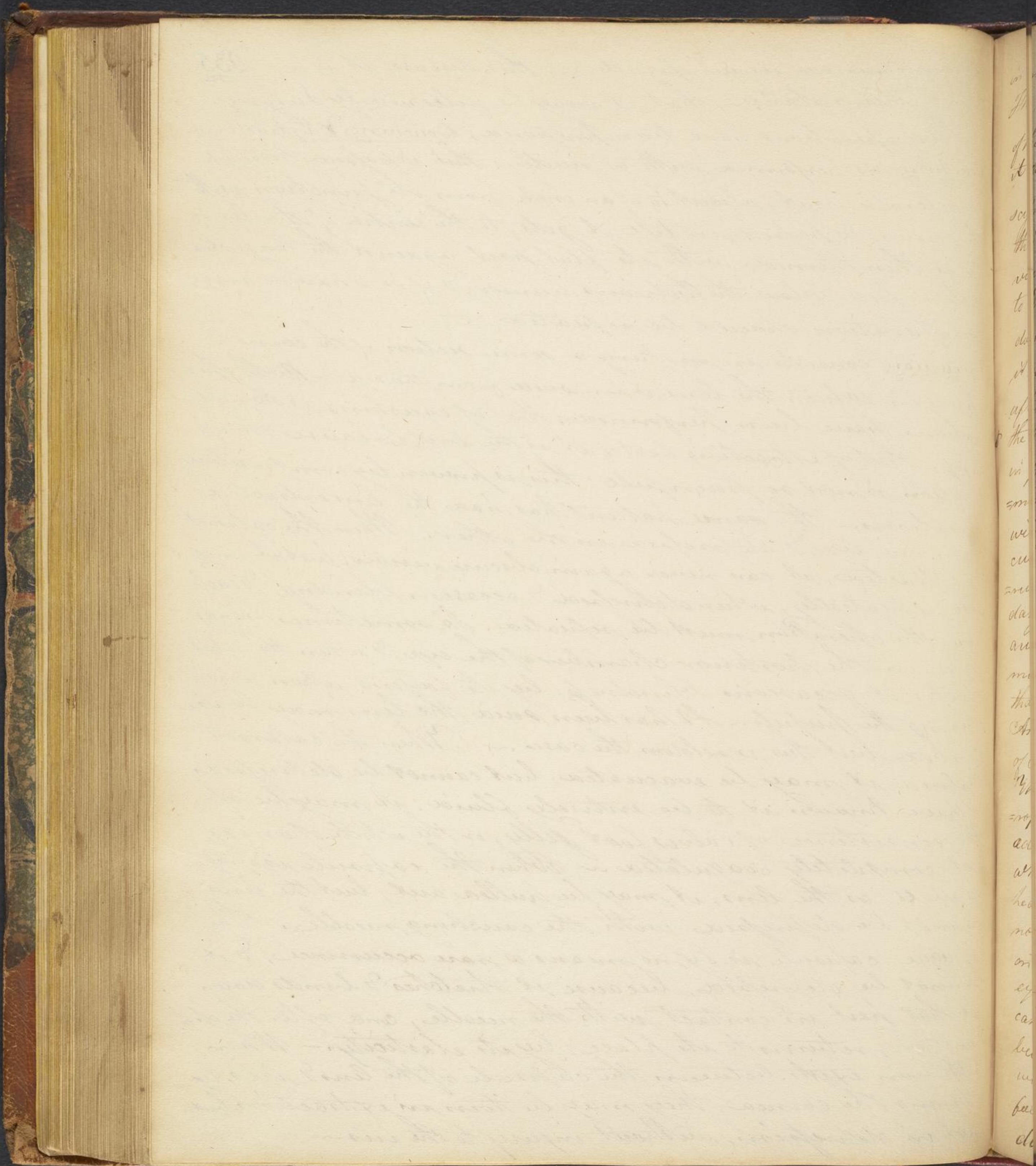
By Cataract, is meant an opacity of the crystalline Lens,
or its capsule, which prevents a transmission of light to the
retina. It shows itself by a spot behind the pupil, & is
commonly grey, sometimes black, & I have seen it of an amber
color. It commences with a dimness of vision, compared
by patients to looking through gauze, & sometimes before
any opacity is discernible by looking into the eye; there is to
the patient the appearance of motes, threads, or hairs, floa-
ting in the air before him. The disease seldom occurs
in very young people, mostly about the age of 40 but I
have seen it in an infant. It often comes on without
any external violence: I have seen one case follow a blow
& another trachiasis. A long list of medicines have been
employed for the cure of cataract, & mercury at their head
but without any good effect; it has been assisted by
bleeding, purging, cupping, blistering, leeches, electricity
&c. but without any advantage: if it arises from any
mechanical violence, it may disperse, indeed nature un-
assisted by art, has the power of removing the opacity;
of this I have known several instances. I think it
takes place oftenest when the capsule of the lens is opac-
=que, & oftener in women than in men. I have seen
the cases of 2 young women in whom the absorption oc-
=curred; they could see by the edges of the convex lens,
which makes me believe the lens was removed. I have
seen another case brought on by an unsuccessful attempt to cure,



If medicines are unsuccessful in this disease it is a 235
happy circumstance, that it may be relieved by Surgery.

Two operations have been proposed; Couching & Extracting.
Couching is performed with a needle: this is passed through
the sclerotic coat, about 10 of an inch from its junction with
the cornea, & passed in till it gets to the centre of the lens;
it is then turned with its flat part against the lens, which
is depressed below the vitreous humor, & if it should rise;
the operation should be repeated.

Extraction consists in making a semi-section of the cornea,
through which the lens is removed from the eye. - Both oper-
ations have been performed; that of couching is the most
easy, that of extracting best; it is the best because the op-
eration is not so perilous: this is proven by comparative
operations. - The same patient has had the lens extracted
from one eye & depressed in the other. When the cataract
is extracted, it can never again obscure vision; but it may
rise repeatedly, when depressed & occasion blindness; each
time the operation must be repeated. It sometimes hangs
loose in the posterior chamber of the eye, & when the patient
stoops it occasions blindness, by its falling upon and
closing the pupil. - It has been said the lens may be ab-
sorbed, but this is seldom the case. - When the cataract
is fluid it may be evacuated, but cannot be depressed.
I have known it to be entirely fluid; it may be of
the consistence of calves foot jelly, or the white of an egg,
not completely coagulated. - When the capsule is opaque
as well as the lens, it may be pulled out, but the lens
cannot be depressed with the couching needle. The
opaque capsule is by no means a rare occurrence; & it
cannot be depressed, because it stretches & bends down
at that part in contact with the needle, and after the op-
eration, returns to its place, by its elasticity. - When
adhesion exists between the capsule of the lens & iris, by
opening the cornea, they may be torn in extraction, but
not in depression, without injury to the iris.



in one instance I saw the iris torn off - 6

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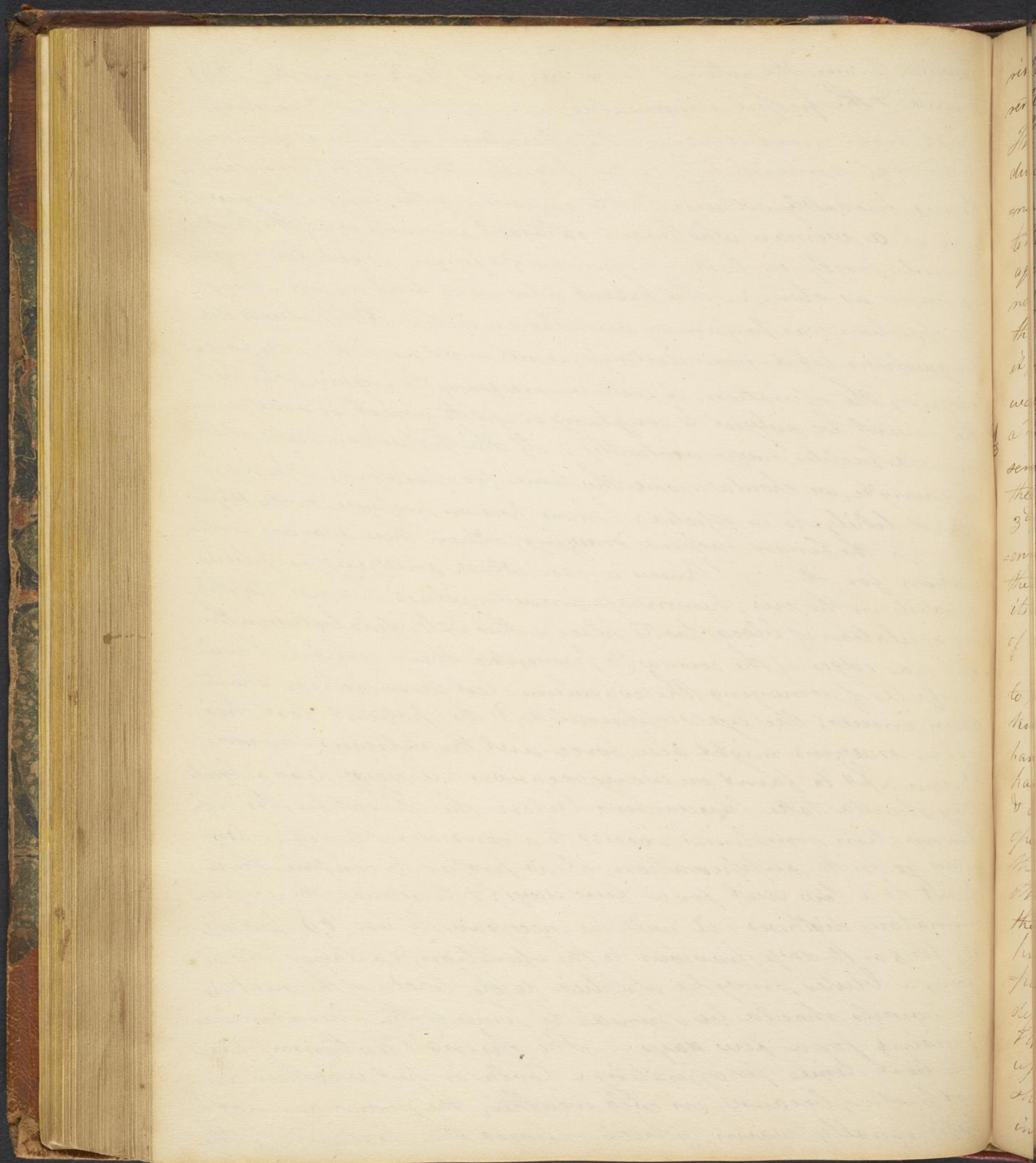
The inconveniences attributed to extraction are, an opacity of the cornea, arising from the cicatrix, but none exists, when it is divided by a sharp knife, with but one stroke; if scissors be employed, there is sometimes an opacity, but this is not before the pupil, & of course will not impede vision - The passage of the lens through the pupil is said to stretch the so irregularly, as to form an irregular pupil, this does sometimes take place, but does not prevent vision, besides it sometimes occurs in depression, & the patient sees as well afterwards as before - The hazard of cutting the iris, in passing the knife across the cornea unless the operator be very careful in passing the knife straight across the eye, the aqueous humor will escape through the section of the cornea, & the iris will fold itself on the edges of the knife, & part of it will be cut away; but this may be avoided by rubbing the anterior part of the eye, which disengages the iris - The great danger that the vitreous humor may escape: but this only arises in consequence of undue pressure being made the moment the section of the cornea is finished, Pressure at that time is unnecessary & should not be made.

As every case of cataract does not promise equal success, it is of consequence to know, what, circumstances are unfavorable.

When it is combined with other diseases the operation is improper. The favorable circumstances are, the eyelids free from adema, the patient should be free from pain in the head when the operation has been performed with a pain in the head: this has been much increased: the surgeon should not be deceived in examining the eye; as in opaque spots on the cornea; & a particular reflection of light from the eye, he may be deceived. He may avoid it in the former case, by looking at the eye side wise: the pupil will be seen below the spots; in the latter the patient should be placed with his side to the window, that the rays of light may fall obliquely on the eye: the pupils should contract & dilate freely. This contraction & dilatation, does not

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however, prove the retina to be sound: & it may be 239
sound & the pupil immovable. If the patient can distin-
guish light from darkness, the operation may be advised.
In cases of immobility of the pupil when the retina is sound
the iris probably adheres to the capsule of the lens. I gave the
case of a woman who had a cataract in each eye, the pupil
moved freely in both: I operated, & found each lens, nearly
as hard as stone: - The patient saw with but one eye, though
the operation was performed similar in each. - The patient's dis-
tinguishing light from darkness, is not a certain test. - Before
advising the operation, it will be necessary to enquire whether
the patient be subject to coughing or apt to vomit, or sneeze, as
some old people sneeze violently. If the patient be subject to
coughing &c, we should choose the time for operating, when he
is least likely to be affected: I have known pressure on the upper
lip with the finger suspend sneezing, when there was an incli-
nation for it. - I knew a case where sneezing ruptured
a vessel in the iris: hemorrhage ensued, which did not stop till
a coagulation of blood took place: this extended between the
divided edges of the cornea, & prevented their union. I was
fearful of removing the coagulum, lest hemorrhage should
again ensue: the eye suppurated, & the patient lost his
sight: sneezing might also force out the vitreous humor.
Persons apt to faint on every occasion are very bad subjects.
they should take laudanum before the operation, for in-
flammation sometimes occurs to a considerable degree, and
may go on to suppuration, it is proper to confine the pa-
tient to a low diet for a few days: & to reduce the infla-
mmatory distension. it will be necessary to use, & S, purging,
&c, for 8 or 10 days previous to the operation, & a day or two be-
fore, a blister may be applied to the back of the neck &
the bowels should be opened to prevent the inconvenience
of rising for a few days. - The spring & autumn, are
the best times for operating. Cold or hot weather are
not proper, because, in cold weather, the room cannot be
kept equally warm, which exposes the patient to the



risks of taking cold: & in warm weather, he is apt to be 241
restless.

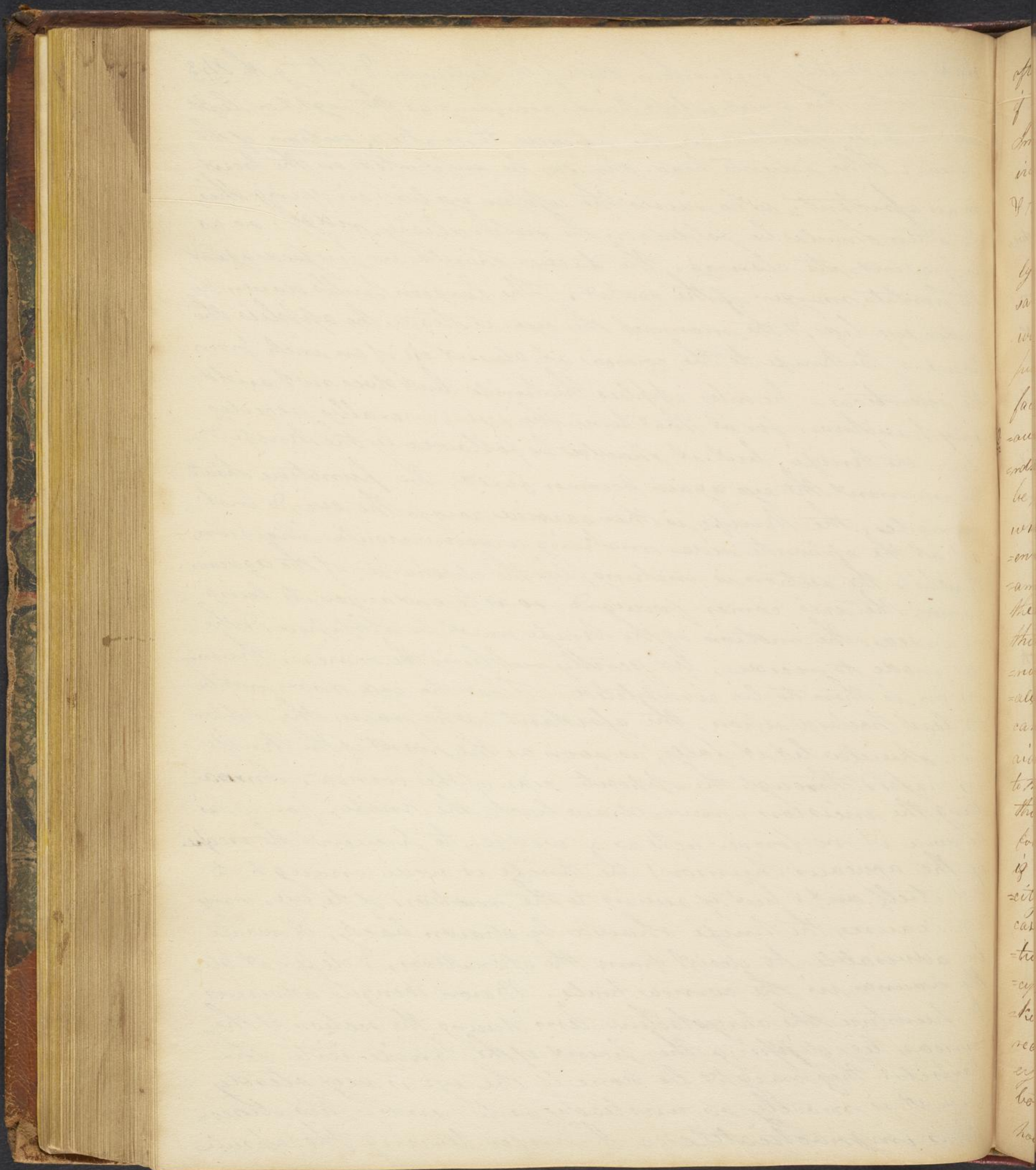
The instruments for operating are first a knife made after the direction of the Baron Wenzel, for making the incision of the cornea: it should gradually increase in size from the point to the handle: it then serves as a wedge to prevent the escape of the aqueous humor: it should be thin but sufficiently firm, not to be broken: the upper edge must be blunt till near the point, & then very sharp. The knife should be very thin: it may be examined with a microscope: or a much easier way is to look at it before a looking glass. In choosing a knife, we should get one wider at the handle, than the semi-diameter of the cornea. 2nd a needle, a little curved at the point, with which the capsule of the lens may be torn. 3^d a little scoop of gold or silver, to extract the small fragments that remain behind: 4th a hook, to be passed thro' the pupil, & fixed in the body of the crystalline lens, for its extraction: 5th A small pair of forceps, for the extraction of small fragments of the torn capsule that may remain.

It was the custom of the ancient surgeons to use the *speculum oculi*: but I use no instruments of this kind: the great objection to them is, that they occupy one hand of the operator: the surgeon cannot rule the anterior part of the eye: the instrument gives pain to the patient & it may excite inflammation. In proceeding to the operation, I begin it of use, while fixing the eye to assure the patient, that there is no pain or danger attending it. The patient is seated in a low chair, with his side to the window, or else the reflection from the cornea, will prevent your seeing the cataract. A bandage is applied round the head, just above the eyes, having 2 depending compresses attached to it, to cover the eyes. The compress hanging over the affected eye, is pinned up to the bandage, if the hair before is long, it should be cut off, to prevent the chance of its getting into & irritating the eye: the surgeon is seated on a

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chair considerably higher than that of the patient. I taking the No 3 knife into his right or left hand, according as the right or left side is to be operated on, he proceeds to make a section of the cornea. The patient's head should be supported on the breast on an assistant, who raises the upper eyelid; in doing this, the skin should be folded on the superciliary ridge, so as to prevent its closing; the tarsus should be pressed against the protuberant margin of the socket. The surgeon pulls down the under eye lid, & the moment the eye is steady he applies the point of the knife to the cornea at about six of an inch from the scleroticum. he only applies the knife but does not divide, only puncture, for at that time the eye generally recedes, from the knife, but it should be followed by the knife & the moment the eye again becomes fixed, the puncture should be made, the knife is then carried across the eye, & lost out at the opposite side making a semicircular incision, & while the section is making, by the discharge of the aqueous humor, the iris comes forward, so as to endanger its being wounded, the motion of the knife must be stopped, & the iris made to recede, by gently rubbing the cornea, the incision is then to be completed. That the eye may not be the least pressed upon, the assistant who raises the upper lid, should let it fall, as soon as the point of the knife has passed through the opposite side of the cornea. In making the incision, never draw back the knife, for if this be done it no longer acts as a wedge, to prevent the escape of the aqueous humor; the knife is wide enough to cut itself out; but if owing to the motion of the eye, or any other cause, the knife should be drawn back, it would be advisable to desist from the operation, & defer it till the wound in the cornea heals. Baron Wenzel advised to puncture the crystalline lens during the section of the cornea, by slipping the point of the knife into the pupil; this might be done if the eye is very steady, but it is mostly so unsteady as to render his directions impracticable. I prefer leaving the capsule



afterwards with a needle: it is much easier done this way, & 245
if the capsule should prove opaque, it can then easily be extracted.
In tearing the capsule, care must be taken not to injure the
iris: this being done the eye must be closed to give it rest
& to let the pupil dilate.

After resting a few minutes, the eye is to be opened
by the surgeon, & gradual pressure made on the ball, at the
same time the division portion of the cornea is raised a little
with the scoop. If the lens does not come easily through the
pupil, the surgeon takes hold of it with the needle or hook, to
facilitate its extraction. The moment it is out, the lids should
be closed & remain so for some time: They are afterwards
opened & the state of the pupil examined: if the capsule
be not opaque, the patient sees, if opaque, the pupil remains
white. The surgeon should then proceed to extract the fragments
of the capsule: these are often brought into the anterior chamber
of the eye, & discharged by gently rubbing the lid over
the cornea, but if they still remain, the scoop should be used,
this should not be pushed too far, for fear of injuring the vitreous
humor. If the capsule of the lens is to be removed a small
pair of forceps is the best instrument. Sometimes the lens
cannot be extracted by a moderate degree of pressure, the
aided by the hook: it is probable that the capsule then adheres
to the iris: the adhesion must be torn away by the needle, but
this requires great nicety. Take care not to throw the iris into
folds or it may be torn. Sometimes we know the capsule
is opaque before operating: we judge of this by spots of opacity
appearing as though detached from the lens. In this
case after the section of the cornea, I advise the anterior portion
of the capsule to be pinched up with a pair of forceps,
& by pulling, the whole membrane may be easily taken
out. The capsule is extracted first because it can
readily be laid hold of, while the lens remains in the
eye. The lens when divested of its capsule falls to the
bottom of the eye: it may be extracted with a small
hook, a small portion of the vitreous humor always escapes,

* A disease of the eye frequently to be met with & which
resist most of the remedies which I have been able to
use is as follows. — The patient for the moment can
distinguish objects as well as ever, but soon the eye becomes
suffused with tears, feels hot & painful to the patient
& he involuntarily rubs them. — This disease is apt to be
worse in the morning than in the after part of the day.
The patient feels most easy soon after dinner especially if
takes a glass of wine. — Various remedies have been
tried without much success. — In two cases I cured the
patients by confining them to a dark room for some time.
All the various colluviations have been tried. Blistering
bleeding, purging, emetics, Salivation, low diet &c
have all had their trial. — The best remedy I have
found has been the Vol: Linct: Gum Gilaicum. — With
this, in one or two instances I have considerably relieved
the patient although never entirely effected a cure. —
One consolation to the patient is that it has never been
known to end in blindness; & in time it generally wears
itself out & entirely disappears. — 1818

After removing a cataract, it is customary to exhibit ²¹⁴
various substances, as watches, & the like, to know if the patient
has vision, but the eye should not be kept open too long.
During the operation, none of the patient's relations should
be present. A Dutchman who had been blind 5 years was
operated on for a cataract, his wife stood by during the ope-
ration, & was the first person he saw: The poor man burst
into a flood of tears, & it was with difficulty he was preven-
ted from, literally, crying his eyes out. After the
operation is completed, a soft dry rag is to be applica-
to the eye, & the depending piece of the circular bandage
is to be turned down over the eye: on this a bandage
should be applica & carried round the head. The patient
is then put to bed & ordered to lie on his back, to
prevent the escape of the humors. All light should
be excluded from the apartment: & he should live
on a vegetable diet: a tea pot should be used to give
him drinks, so that he may not raise his head in
drinking. The patient's hands should be secured
by pieces of tape tied to his bed rails, to prevent
his rubbing his eyes in his sleep. In 8 or 10 days,
the eye may be examined: If pain or fever
come on, use remedies to remove them, & change
the dressings every day, as the moisture that
is discharged from the eye is absorbed by the
dressings, which becoming dry, causes irritation, then
the dressings are changed, always pull down the
under eye lid. The cilia, if they have got into
the incisions, prevent ~~the~~ healing.

{ Albrecht Meibom's operation for destroying
the capsule of the lens

1818

Hernio

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Hernia, may be defined to be a tumor occasioned by a protrusion of some of the contents of the abdomen. This takes place at different parts of the body, but most frequently in the groin, owing to the parietes of the belly being weakest at that part. — Opposite the groin is an opening for the passage of the spermatic chord in men, & for the round ligament in woman, through which, either the omentum or intestines may be protruded; This protrusion may happen in other parts. When the tumor is farthest in the navel, it is called umbilical hernia, when in the groin, bubonocoele, & in the thigh femoral hernia. — In every instance it is caused by the protrusion of some part of the omentum, or of the alimentary canal. In every hernia the parts protruded, are included in a sac which is formed by an elongation of the peritoneum. — There is one species of hernia, called hernia Congenita, well worthy your attention, here the bowels are in contact with the testicles; The tunica vaginalis, which is properly a peritoneal covering of the testicles passes with them, in their descent down into the scrotum; the upper part of this sac generally closes up round the spermatic chord, immediately after the descent of the testicles which is about birth, or 2 or 3 days after or before. It sometimes so happens, that this does not immediately close up after the descent of the testicles, but remains open for sometime, & when it does not close, by coughing, sneezing, crying &c. hernia is produced. I shall ~~at present~~ confine myself to that species of hernia called Bubonocoele. The symptoms are, swelling in the groin, beginning at the abdominal ring, & passing into the scrotum of men or labia pudenda of women. The testicle can be felt at the bottom of the scrotum; the tumor is soft; bears handling well; & when the patient lies down disappears. Pressure on the abdomen makes it tighter, & when the surgeon lays his hand on it, & the patient coughs, he will feel pressure made against the hand, causing a sensation as if distended with wind. There are some diseases with which hernia is likely to be confounded; as huiacs, swelled testicles

1844

My dear Sir

I have the honor to acknowledge the receipt of your letter of the 10th inst. in relation to the matter of the

and in reply to inform you that the same has been forwarded to the proper authorities for their consideration.

I am, Sir, very respectfully,
Your obedient servant,
J. M. Smith

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lumber abscess, & hydrocele: but by paying attention, it is 251
very easy to distinguish between them. A lumbo is generally
preceded by a chancre: is hard & painful, & the tumor does not
disappear upon lying down. It is very easy likewise to distin-
guish between lumbocele & swelled testicles, or hydroceles. In
hernia tumoralis, the testicle is hard & painful to the touch,
is only found at the bottom of the scrotum, & the spermatic
chord can be traced to the abdominal ring, at which place
it is free from swelling. In hydrocele the tumor begins
at the bottom of the scrotum, & works upwards, whereas in
lumbocele it begins to swell at the top, or groin & works
downwards: The fluctuation may be felt in hydrocele: &
in swelled testicle or hydrocele we cannot reduce the tumor
by squeezing it. But hydrocele is sometimes more difficult
to distinguish: I have seen it enveloped in a cyst, which, when
the patient strained hard, protruded, & the testes were at the
bottom of it. Hydrocele is generally diaphanous: a case came
under my notice, which was supposed to be hernia, & as such
was treated. I was convinced on examining it that it was
hydrocele: It was diaphanous, admitting the light to pass thro'
it, & was cured by tapping & afterwards injecting wine.
In the lumbar abscess, the matter passes from its seat in
the Psoas muscle, down under Poupart's ligament, fol-
lowing the course of the muscle, & forms a tumor in the up-
per & anterior part of the thigh, at which place the fluctua-
tion can be felt, & the tumor can be pushed from the thigh into
the cavity of the abdomen, & vice versa, as pressure is made on ei-
ther part: if your hand be laid on the abdomen & pressure made
the tumor on the upper part of the thigh, will be rendered
more full & tense. The great danger liable to take place in
hernia, is from great inflammation which ensues, from
the stoppage of the circulation & faces, in consequence of the
stricture coming on. When the existence of a rupture is
ascertained, it should be reduced & supported by a
truss. The patient can often reduce it himself: but when
he cannot the Physician, by laying him in a horizontal

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position, for the most part can effect it, after which a truss 233
should be applied directly over the orifice. The truss is generally
applied on the soft part of the pubis, so as to press the sperm-
atic chord, occasioning great pain to the patient, if continued
for a long time; or applied so far on the groin, as not effect-
ually to close the rupture. The best way is to examine ex-
actly with your fingers, tracing the tumor into the abdomen
& when you find the orifice, apply the truss so that the soft
parts shall be exactly under it, just above the upper edge of
the pubis. Trusses are mostly employed for a particular age
but they should be employed at all ages when necessary.
Structures sometimes prevents the reduction of the protur-
ded part, but we cannot always reduce them when there is
no structure, & this for several reasons; first, because too large
a quantity of bowels have collected in the tumor to allow
of being returned; the 2^d difficulty of reduction, is from an
attraction of a part of the omentum; & 3^d from adhesion
taking place between the protruded parts & the sides of the
opening, or from adhesions of the protruded parts among
themselves. When the difficulty after reduction arises
from adhesions, it will admit of no remedy, but being
supported by a truss. When there have been no adhesions
I have succeeded by confining the patient to a horizontal
position, low diet, bleeding, cathartics, &c. & applying a truss.
When adhesions have taken place, so that the surgeon is un-
able to reduce the tumor, a sac made so as just to contain
it, should be applied, or else the hernia will enlarge till
it gets to a great size. I once saw a case where the sac
had got down to the knee. If the patient, in such a
situation, neglects the truss, he is not only in great distress
but in danger of strangulation of the hernia. The symp-
toms of strangulation are, increased hardness of the tumor
obstinate costiveness, pain, if the patient stands up; hard,
contracted, tense pulse; sometimes vomiting, & the tumor
becomes painful to the touch. When called to a case of
strangulated hernia, it requires immediate care and

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attention: in proceeding to return the protruded part 255
the patient should be placed in that situation, which will
throw the contents of the tumor towards the abdomen: he
should be placed on a firm bed, or mattress, with his
buttocks raised considerably higher, & the thighs bent
upon the body, so as to relax the muscles. When this is done
squeeze the protruded part cautiously with your hands
so as not to injure the bowels: if the patient can do this
himself it is best, as he will be likely to use less violence.
This operation is called taxis. If this is not sufficient
bleeding copiously has been of use, & Mr Pott advises to
continue it ad deliquium, & then try if it can be reduced:
the bleeding tends to prevent inflammation. I have not
however seen any cure ad deliquium animæ, where the reduc-
tion succeeded immediately after. Cathartics are generally
given after reduction: I have found cream Tart: with about
8 or 10 grains of Jalap, & gutt month: answer very well: with
this the warm bath should be used: the patient should
be kept in it till he becomes very weak, & while in the bath
the surgeon should try again to reduce it: this by producing
a general relaxation, will I should not frequently succeed.
I have therefore a very good opinion of warm bathing for
strangulated hernia: When all these remedies fail, inject-
ions made by a decoction of tobacco (3j tobacco to a pint of water) may
be used: this decoction is to be thrown up, so as to occasion
nausea & general relaxation. This is the most successful re-
medy in strangulated hernia, but the fumes of tobacco
are not so convenient, as they require a peculiar apparatus
and sometimes they excite spasms. When all these remedies
fail, the application of ice or snow has proved useful: a
strangulated hernia has been reduced by cold: this is particu-
larly recommended by Mr Wilmer, & I would not hesi-
tate to employ it when other remedies fail: it should be
continued some time, perhaps 3 or 4 hours if necessary. If
all these remedies fail we must resort to an operation: for
if the patient is not soon relieved he grows worse,

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the sickness becomes more distressing, the pain is intense, 257
the belly swells, the fever more high, success, cold sweats
occur: but after a while the symptoms cease, & the patient thinks
he is getting better: & in some instances the contents of the tumor
voluntarily go up: but the symptoms soon return worse
than before, & death soon closes the scene, from mortification
of the intestines coming on. It is difficult to tell when
is the exact time to perform the operation, because the bands
sometimes mortify in a short time, by the pressure, & at
other times the patients will bear it 4 or 5 days & then get
well: but in general I would advise, if the above remedies
fail, to operate in about 30 hours, at most, after its com-
mencement, if the strangulation remain. I have once suc-
ceeded in reducing the tumor after all other remedies failed
by raising the foot of the bed considerably higher: the tumor
receded voluntarily in the course of the night.

In proceeding to operate for Bubonicle, the first precaution
is, to shave away the hair: then make an incision in the
direction of Poupart's ligament, at the upper part of the tumor
about 2 inches in length, & dissect up the upper part, laying
the tendon of the external oblique muscle bare, so as to ex-
pose the ring: this done, puncture the tendon in the direction
of its fibres, at about half an inch from the upper part of
the incision: a director is introduced at the puncture, & passed
out at the abdominal ring: the part of the tendon laying
over the director is divided lengthwise of its fibres: an attempt
is now made to reduce the contents by taxis. This practice
has been disapproved by some surgeons, who say that the con-
tents of the sac may be in such a condition as to forbid
reduction, & that it should be opened to examine its con-
tents, opening the sac would produce a communication
for the air to the cavity of the abdomen & all such com-
munications are attended with violent inflammation
which mostly terminates fatally in or before the 3^d day,
those who contend that it should be opened support their
opinion by supposing if any part be killed: or the sac

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contain acrid serum & be returned in this state into the ³⁵⁹ abdomen, it will occasion great inflammation; but I would ask these surgeons, if they would not before the operation use every exertion to reduce it without an operation. - & in the present if it can be reduced it will prevent the necessity of opening the sac, by which the risk of peritonical inflammation will be avoided. Should the attempt to reduce the protruded parts prove ineffectual, the operation must be continued, to the bottom of the scrotum, & the sac laid bare; after this, attempts to scratch through the sac should be repeatedly made with the point of a scalpel, trying with a probe after each scratch, whether a puncture be made, & when this is done, introduce a director, & with a blunt pointed bistourie enlarge the orifice so as to admit the finger, which is the best director for the knife, & then the sac is divided the whole of its length from the ring. Next examine the contents of the sac, which, if sound, must be carefully returned into the abdomen; but this cannot be done at times for 3 reasons 1st adhesion 2nd a change in some of the protruded parts or 3^d a stricture in the neck of the sac. When they cannot be returned on account of a stricture, the mouth of the sac should be divided introducing the finger as far as possible for a director, to prevent wounding the intestines. - Sometimes adhesions take place so that the intestines cannot return when the sac is laid open; these may easily be separated, either with the fingers, or the handle of the scalpel. - If the protruded part has mortified, it should be separated, & the sound parts of the intestines be joined by the interrupted suture, & secured fast to the sides of the wound, & notwithstanding the feces will escape thro' the orifice for some time, it will mostly heal well at last.

Although in Bubonicle it is best not to open the sac when it can be avoided yet in Femoral Ruptures, I believe it is mostly safest to open the humial sac & then

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divide the structure: the sac here is externally thin, and 261
scarcely to be seen: in proceeding with this operation, a great
deal of caution is necessary to prevent wounding the intestines
when cutting near the neck of the sac care should be had, not
to lean to either side, because the epigastric artery passes on the
outside, & on the inside, the spermatic chords, crossing each
other, directly over the structured parts, & if you cut posteriorly,
you will wound the great bloodvessels. To remove all this
Mr. Gimbernat proposed to dilate the structure, by making
the incision towards the pubis, this method is, after opening
the sac, to introduce a director or the finger, which is better,
along with the bistoury, having its edge looking toward the
pubis: when you come to the structure, the incision is to be
made towards the pubis, dividing the structure so as to cut
behind the spermatic chords, Dr. Munro advises to cut from
the neck of the sac towards the umbilicus, so that by keeping
that direction, you might dilate the structure towards the
angle formed by the epigastric artery & spermatic cords, &
thereby avoid wounding either. I would advise you to read
Pott, Hall, & Cooper on this subject. Sometimes the finger
cannot be introduced on account of the smallness of the
aperture, When this happens, introduce a director, & then
with a bistoury lay it open sufficiently to reduce the
protruded parts. - If the protruded part of the intestine
be found mortified, it must be removed, taking care to
cut through a sound part, so that the dead portion
may be completely removed, & the sound part stitched to
the side of the wound, so that the intestine may protrude
half an inch: the protruded part will be retracted in
time, as the parts heal, into the cavity of the abdomen &
as they are drawn in, the edges will come nearer in contact,
till they unite & form a perfect canal completely within
the abdomen, & the patient will discharge the feces in a na-
tural way. Sometimes the orificium is found in
a sphacelated state, but it should never be returned into
the abdomen, for the dead part will cause peritonitis.

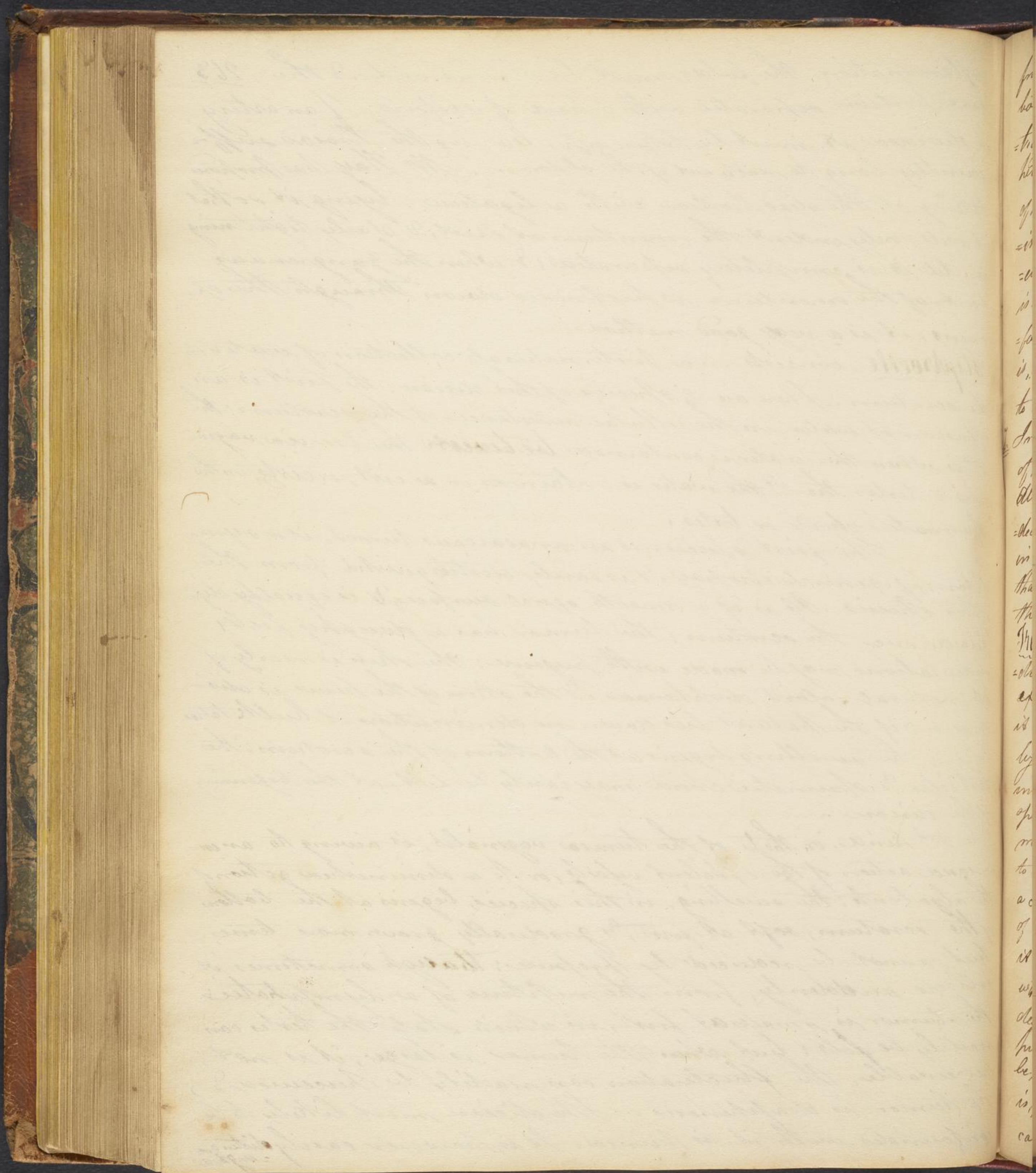
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inflammation: the folds must be spread out, & the 263
dead portion separated with a pair of scissors. If an artery
is divided it must be taken up, leaving the thread suffi-
ciently long to reach out of the abdomen. Mr. Hay has proposed
taking off the dead portion with a ligature, tying it so that
it will only indent the omentum at first, & daily tightening
it, till it is completely separated: & when the gangrenous
part of the omentum is protruded down through the op-
ening, it is a very good method.

Hydrocele, consists in a preternatural collection of water in
the scrotum. There are 3 species of this disease: the first is an
effusion of water in the cellular substance of the scrotum: the
2^d is when the water is contained between the tunica vagin-
alis & testes the 3^d the water is contained in a cyst, or cysts on the
spermatic chord or testes.

The first species is an anasarcaous tumor, is a sym-
ptom of general dropsy, & is easily distinguished from the
other species. It is of a smooth equal surface, & is equally dif-
fused over the scrotum: the tumor has a doughy feel: im-
pressions may be made with pressure: the skin is nearly of
its natural color & diaphanous, & the skin of the penis is dis-
tended: if the patient lies down, no diminution of bulk takes
place: the swelling begins at the bottom of the scrotum: the
testicles & spermatic chord may easily be felt, at the beginning
of the disease.

The 2^d kind, or that of the tunica vaginalis, is owing to an in-
creased action of the exhalant vessels, or to a diminished action of
the absorbents: the swelling, in this species, begins at the bottom
of the scrotum, soft at first, & gradually grows more tense,
but cannot be reduced by pressure: though sometimes it
collects suddenly, from the rupture of a lymphatic: the
tumor is small at first, in which state the testes can
readily be felt: but when the tumor is large, it is not
perceivable, the fluctuation can readily be perceived, &
the tumor is diaphanous. The disease most likely to be
confounded with it, is hernia. It is however easily distinguished



from hernia, as in the former case the tumor begins at the 263
bottom & extends upwards, upwards, but in the latter, the con-
trary takes place. Hydrocele is always permanent, but in
hernia the tumor often disappears when we lie down. Schirrus
of the testicles has been confounded with it; we can distinguish
between schirrus & hydrocele, by the former having a sw-
elled spermatic chord, & in schirrus the tumor is flattened &
is heavier than in hydrocele. It is scarcely possible to con-
found it with hernia humeralis. This kind of hydrocele
is, however very complicated, so as to require much attention
to distinguish between it & other diseases.

In the third species the testicles can be felt at the bottom
of the scrotum: the tumor is diaphanous, & swell up to the
abdominal ring: & in one case, I believe the swelling exten-
ded through the ring: in such cases there is much difficulty
in distinguishing from hernia, only if we press the tumor so
that the water passes into the abdomen, the instant we remove
the pressure it will return. I shall now proceed to speak of the

Treatment. No inconvenience results to the patient from hy-
drocele, but from the weight & bulk of the tumor, tho' the skin
excoriates, at times, in hot weather, & if the patient, walk about,
it causes pain in the back & from the weight: this is relieved
by the suspensory bandage, which is worn with so little
inconvenience, that some persons refuse to submit to the
operation. The anasarcaous hydrocele is generally cured by
medical means; it is sometimes necessary however to resort
to an operation, for the discharge of the fluid to produce
a cure; this I would advise to be discharged slowly, by means
of small punctures made with the point of a Lancet, that
it may come out: this is preferable to making an opening
with caustic, or the introduction of a seton, or making a
deep incision, which may produce mortification. If the
punctures are to be covered with dry lint: they should
be made in 4 or 5 places. Sometimes an anasarcaous tumor
is produced, by a bursting of the tunica vaginalis. A case
came under my care, in which as the patient was sitting

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still he felt something snap in the scrotum, & shortly ^{26th} after a tumor appeared, which was soft, & diffused over the whole scrotum: the skin became black, which very much alarmed the patient, as the suppurative mortification was coming on. Three Physicians were called in, who not understanding the nature of the case, were suspicious that his apprehensions were too well founded. ~~Mr. Hunter~~ ^{Mr. Hunter} supposed that the tunica vaginalis was ruptured, & that the color was owing to the escape of the blood: this proposition was readily agreed to, & the patient was informed that in time the blood would be absorbed, & the wound in the tunica vaginalis would heal, but that he would be subject to a return of the complaint: all of which turned out as had been predicted.

D. Ellis mentions a case of Hydrocele of the Tunica Vaginalis which was cured by purging. I have cured it by causing water to be poured upon it from the spout of a tea kettle 2 or 3 times a day, this method will often succeed in children: Sometimes it is absorbed without any aid when both these fail, it is necessary to have recourse to an operation: relief may commonly be obtained by evacuating the water. This is done by means of a common lancet which I prefer to the trochar. When the trochar is used, it is to be pushed through the scrotum into the cavity of the hydrocele: the stylet is then withdrawn to suffer the water to pass off. after this is done, the wound is closed by applying a strip of adhesive plaster, & the part supported by a suspensory bandage, this is only a palliative, & is not sufficient to cure the disease completely: but to produce a radical cure, it is necessary something more should be done. There are several modes of effecting a radical cure: the object of them all is to effect an union between the tunica vaginalis & testes of which I will mention 4. The most ancient is, to make a long incision through the scrotum, so as to examine the state of the testes: when it is ascertained to be free from schirrus, lint is placed in the cavity between the tunica

T Common water will sometimes increase the necessary
degree of inflammation

vaginalis & body of the testis, to excite an inflammation ²⁶⁹
of the part; so that the surfaces may adhere together: the
lint is to be left in till suppuration takes place freely,
then it is to be extracted, when the tunica vaginalis ad-
heres to the testis, forming an union with it. This frequently
succeeds, but it causes great pain & inflammation, & ab-
cesses sometimes form after the patient is thought to
be well. I have seen abscesses formed in the scrotum,
in consequence of some portion of lint being left behind,
6 weeks after the wound had healed, & it frequently happens
under this treatment.

The next means is by an eschar formed by means of caustic:
this is not only attended with great pain & inflamma-
tion but causes a large suppurating sore, to the no small
distress of the patient. Mr Ellis has proposed to apply
it only the size of a shilling, which he thinks would
be sufficient to excite inflammation over the whole cav-
ity, but this often produces violent inflammation of
the whole scrotum, & sometimes mortification. This me-
thod is seldom used at present.

The 3^d method is to pass a seton through the scrotum between
the tunica vaginalis & testis. This method is recommended
by Mr Pitt; but it is exceptionable, because the adhesion will
take place only at the part of contact of the seton, & then the
disease may again recur: & likewise, when there are cysts in
the body of the testis, this treatment will not do, & there can-
not be opened without laying open the tunica vaginalis, but
the cure must be effected by suppuration.

Mr Earle has revived the method of throwing stimulating
injections into the scrotum; he uses wine diluted with one
^{half} water. Some advise a solution of white vitriol, & I
have no doubt but that it would answer very well. Co-
chine sublimate has been recommended, but if it be
employed, it should be very weak. After the water
has been drawn off, wine may be injected into the
tunica vaginalis: this will sometimes cause a good

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deals of pain, across the lumbar region, & has produced $\frac{27}{100}$ syncope. It should soon be let out, perhaps in 3 or 4 minutes inflammation will come on in about 3 or 4 days, but never runs very high, & soon subsides without any trouble; if there is much inflammation venesection may be necessary. - Frequently in the cessation of inflammation, the water again returns: in all cases of this kind I have effected a cure by pouring cold water over the part; to about the amount of half a gallon per day. When the first operation fails, it is not so severe but that the patient will mostly submit to it again. When 1 or 2 injections will not do, Mr. Hunter proposes to make an incision about an inch long in the anterior & upper part of the scrotum, so that the finger may be introduced to ascertain if any hydatids exist, & fill the space between the tunica vaginalis testis with flour, or small boluses of dough to cause an equable suppuration over the whole cavity: after 4 or 5 days suppuration will have taken place, & the dough will have become soft, so as to resemble only thickened pus in consequence of mixing with the fluids thrown into the cavity. The contraction of the scrotum which takes place will gradually force out the dough, & as it is removed the sides are brought into contact, regular adhesion takes place, & the cure is effected. I have performed this operation several times & believe it to be the best mode of curing the complaint. The instruments for injecting the wine are a trochar about 3 inches long: a syringe or a cock with a bladder, or gum elastic bag fixed to the end of it, for containing the injection. The patient is seated in a chair & directed to grasp it with his hands: because if they are at liberty, he will be apt to disturb the surgeon. When fixed in this manner, so that the scrotum projects over the edge of the chair, the operator takes hold of it, & causes a tension in that part of the scrotum, in which he intends to make the puncture, & then pushes in the trochar: as soon as this instrument has penetrated the cavity, the stylette is withdrawn & the canula pushed further in, to prevent

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the tunica vaginalis slipping off the end of the tube which 273
waulers prevent the water from flowing out: when the water is
drawn off an injection of Port wine is thrown in, retained a
while, & then suffered to run out: the wound is closed with adhesive
plaster, the scrotum is suspended, & the patient put to bed. Care
must be taken, to keep the canula through the tunica vaginalis
when you inject, else the whole of the injection will be thrown
into the cellular substance, without effecting its way into the
proper place, & a new operation will be necessary: You must
also be careful to examine well when you puncture the
scrotum, to avoid wounding the testicle, which too often
happens. — A Gentleman troubled with hydrocele, called
a surgeon to his aid, who performed the usual operation with
a trochar, but, to his astonishment no water flowed upon
withdrawing the stillette. — Another surgeon was called, who
likewise performed the operation nearly in the same place
and with similar success. — A third surgeon operated
but met with the same disappointment as the others. They
now agreed that it was a very difficult case to understand.

Mr. Hunter's aid was then desired, who, upon examining
the case, & recollecting the peculiar sensations the testes
gave when squeezed, though he could not feel its situa-
tion, yet by the sensation caused by squeezing, he found
the testes to be attached to the scrotum at its an-
terior part, just where they made their punctures
& that the trochar had been pushed into the body of the
testes. He then pierced the tumor at the lower & back
part of the scrotum, where the testes usually lies & the wa-
ter flowed out as is usual in common cases.

Lithotomy

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Syphotomy.

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Calculous concretions are found in different parts of the body. I have found one of the size of a pea at the root of the tongue; they are also found in the salivary duct, lungs, uterus &c. but they are most commonly found in the urinary organs. — The incrustations deposited on the sides of vessels which hold urine prove that the calculus substance it contains may readily form a stone. The quantity of calculus matter varies in different persons, & it is greater at one time than it is at another in the same person. It is not my intention to enquire into the circumstances which dispose the body to the formation of calculus, it being sufficient for my purpose, to know that it can be formed by a deposition from the urine. —

— I have seen a calculus concretion form on the end of a catheter, that had remained in the bladder for a few days. The different kinds of substances that have been found in the substance of calculi: prove sufficiently that any solid substance remaining in the bladder, a short time may be a nucleus for a stone. — The stone is not always of one uniform consistence, but consists of several laminae, some of which are hard, & some soft, they are likewise of different colours, some being white, & others dark brown. The reason of this difference I believe has never yet been satisfactorily accounted for: stone is sometimes found in the kidneys or prostrate glands: I believe it most frequently originates in the kidneys, & is washed down the ureters into the bladder though it is not always the case: when it is in the kidney, it occasions pain in the small of the back: a case of this kind was cured in a gentleman by riding on horse-back from Germantown to Philadelphia: but he was the same day affected with stone in the bladder. When stone is formed in the kidneys, there is a considerable difference from what happens when formed in the bladder. — W. Broomfield has described the symptoms so accurately that

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I shall give them in his own words —

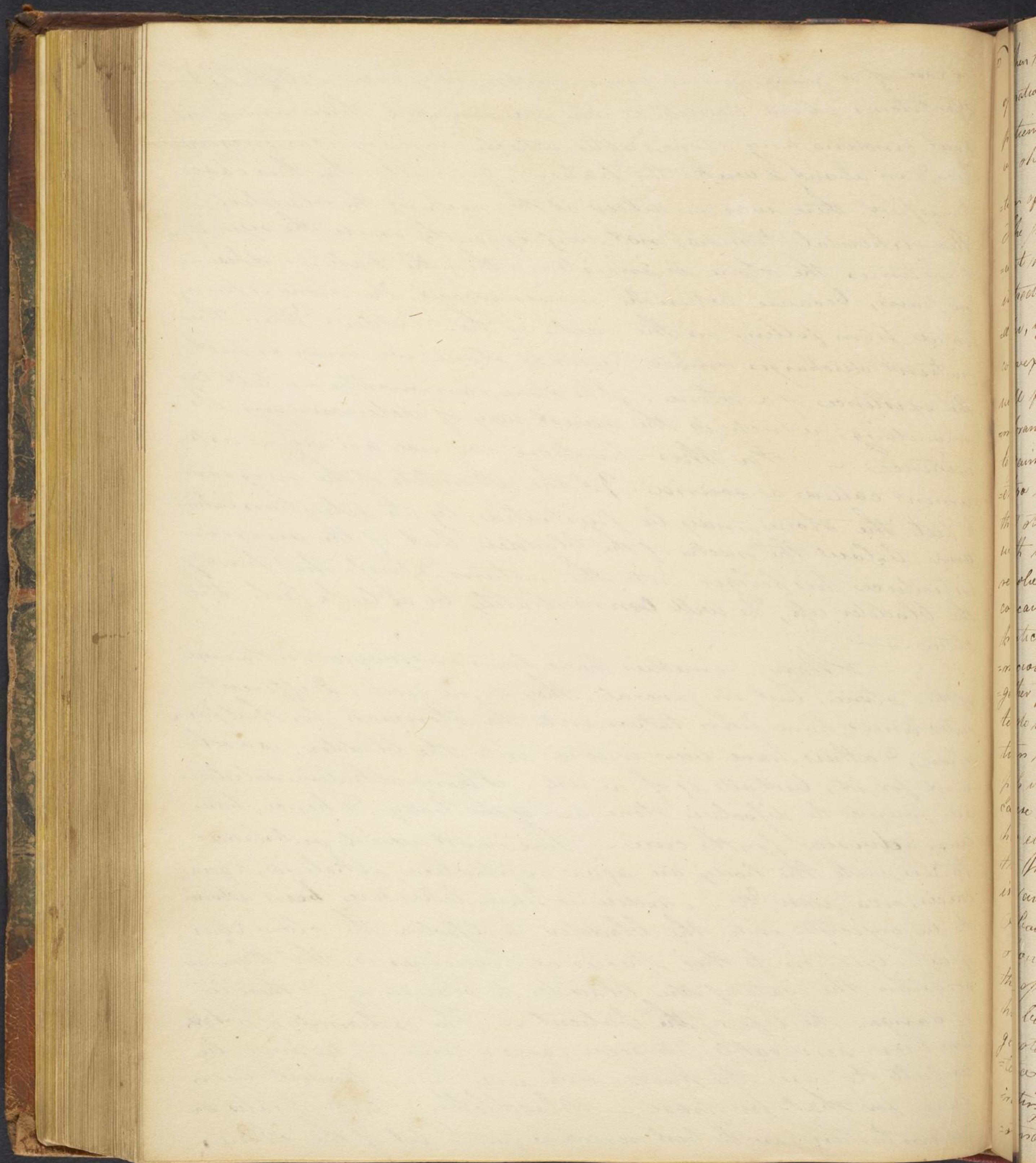
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When they exist in the bladder they occasion a distention of the viscus by preventing a discharge of urine, but when in the kidney they prevent it from flowing into the bladder — The stone frequently lodges in the ureter, in its passage to the bladder occasioning a great accumulation of urine & distention of the ureter above the lodgment of the stone, till the column of urine & distention be so great as to force it down into the bladder — This causes considerable pain, but when it is washed down into the bladder, the patient is much eased. — The stone is sometimes lodged between the coats of the bladder, producing great pain & the itchings are violent. When the patient complains of burning & pain in the bladder, we have reason to believe the stone has found its way into it. The patient should drink plentifully of barley water, & endeavor to pass the stone by urine he should try this repeatedly, if it does not succeed the first time! — if this is not successful the pain becomes greater, & it is always worse after voiding urine. When a stone exists in the bladder the patient feels an itching sensation at the glans penis, with pain & heat in the bladder at the place where the stone is lodged. The stream of urine is suddenly stopped (at times occasioning great pain) by the edge of the stone on the orifice of the urethra; & at other times it flows in a full stream. An uneasy sensation is felt all along the urethra, between the perineum & glans penis as though something was lodged in the passage, occasioning the patient both to squeeze & pull it up; & thereby causing causing an elongation of the penis & prepuce. Sometimes it is attended with hæmorrhoids & prolapsus ani. The urine is pale & often mixed with blood. Digestion is interrupted flatulency, constiency, weakness, fever, & if the stone is not removed death soon takes place — These are the generally attending symptoms of stone in the bladder, they do not prove it unequivocally, as they may occur from other causes, as inflammation or ulcerations of the neck of the bladder, or ulcers or tumors in the scrotum.

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A case of a young woman came under my care with the 279 symptoms above described, who was sounded three times, without finding any stone; after which mercury was prescribed, & in about 2 weeks the patient got well. In this case I suspect there was an ulcer at the neck of the bladder. Hemorrhoidal tumors, not unfrequently cause the symptoms. Sometimes the stone is incised & then the patient experiences no pain, because when he moves about, the stone is prevented from falling on the neck of the bladder. When the patient discharges small pieces of stone we may expect the existence of a stone. The stone can mostly be felt by sounding, which is the surest way of determining its existence. For this purpose we use an iron instrument called a sound. Yet the attempts of the surgeons to feel the stone may be frustrated, by its situation behind and below the neck of the bladder, but if the surgeon introduce his finger into the rectum, & press that part of the bladder up, he will immediately be able to feel the stone.

Many remedies have been employed for the cure of the stone, but in general, they do no good. Different substances have been taken into the stomach for that purpose, & others have been injected into the bladder, as a solvent for it, but all is of no use. Strong alkaline solutions are found to dissolve stone out of the body, & hence have been advised for the cure. The most usual substances taken into the body are aqua nephretica, alkalina, aqua calcis, ura urii &c. Medicines have likewise been advised to be injected into the bladder to dissolve the stone. Our great objection to this species of medicines is, that they may occasion the coats of the bladder to slough off, & thereby endanger the life of the patient. The carbonate of potash has been serviceable in some cases: lime water may be useful to ease the pain: ura urii has likewise been given for that purpose. Bloodletting and opiates or warm bathing, are the best remedies for a fit of the stone.



When the substances employed, fail of giving relief, the 281
operation of Lithotomy becomes necessary for the existence of the
patient. Before proceeding to the operation in cold weather
we should dip the sound in warm water, to prevent contrac-
tion of the parts.

The patient should be laid on a table, or some conven-
ient place, & the surgeon, after oiling the sound, proceeds to
introduce it with the concave part turned towards the bla-
dder, if it is not easily introduced in this manner, turn the
convex side towards the bladder & try again: the sound
will frequently pass up the urethra, till it comes to its mem-
branous part & then suddenly stops: no force should be used
to gain an entrance, lest the sound be forced out of the ure-
thra into the soft parts. - To avoid the pole in the urethra
that stops the sound, the instrument is to be turned round
with its concave side up, in such a manner that it shall
revolve exactly on its axis. - Some surgeons turn the
concave side of the sound to the bladder & persist in that
particular way for its introduction, whilst others as ter-
minously persevere the opposite course. This arises alto-
gether from prejudice, because they have always been used
to do it in that way. - When the sound is introduced,
turn it in all directions: if you do not feel the stone,
pass it further into the bladder: if it is not yet felt,
cause the patient to change his position: when the stone
has eluded the sound, it is frequently felt, by placing
the patient on his hands & knees: & when its existence
is fairly ascertained, the operation may be performed.
About 2 weeks previous to the operation the patient
should attend to his diet, & live low, & the day before
the operation, should take a dose of castor oil: to open
his bowels: & about an hour before the operation, a
glyster with a portion of opium should be adminis-
tered. - Some advise to empty the bladder before oper-
ating, but I should advise to have it moderately dis-
tended which will render the operation easy.

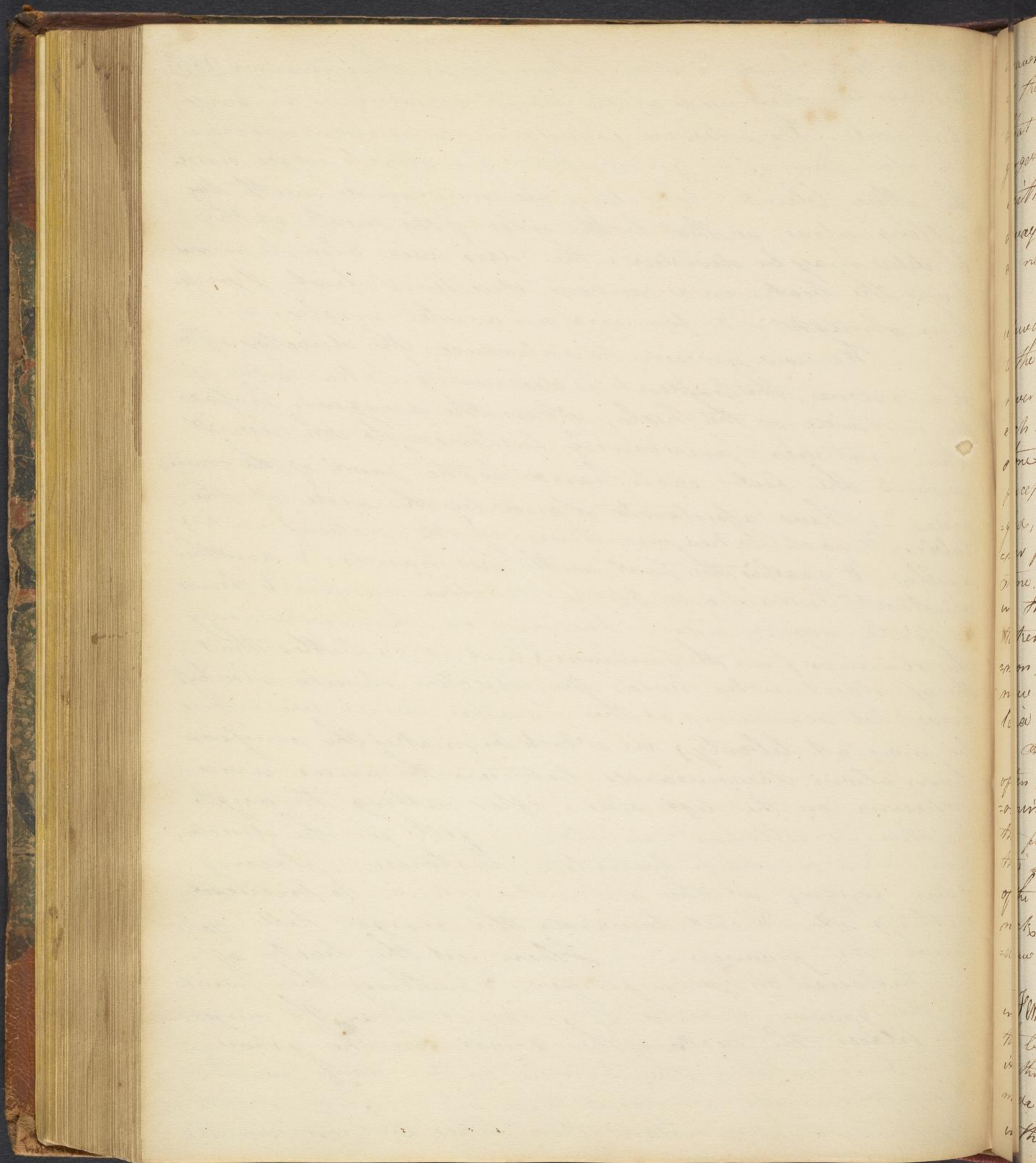
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The apparatus necessary for the operation, are first a table 283
of the ordinary height, which should be narrow, so that the assis-
tants can have an opportunity of holding without bending
over it, which would tire & prevent them from holding steadily.
A blanket, or something of the kind is to be spread over the
table, & pillows applied to support the patient's head. We
should be provided with warm water, & sweet oil; also with
ligatures & a tenaculum, for taking up divided vessels. Lig-
atures must be provided to tie the hands to the feet, to pre-
vent the patient from kicking; wrists being answers
very well for this: next a grooved director, a scalpel, a sharp
pointed bistouri, a gorget to divide the sides of the neck of
the bladder: the point of the gorget should be so as to slide
easily in the groove of the staff (which is of great consequence) it is also
to be very clear of blood, or unctuous matter, & very smooth & clean;
we must also have forceps, of these I prefer small ones, to
those that have large ends for grasping the stone; if these
are not strong enough to extract the stone, a common scoop
such as accoucheurs use for extracting the child's head, may
be introduced by the side of them, & assist in drawing out
the stone. Sometimes the stone is not sufficiently strong
to bear extraction, but breaks in pieces, then the small for-
ceps are much best: if any part is broken off, it may easi-
ly be seen, by examining the part extracted: a Syringe
has been found useful to clear the bladder of small pieces
of stone, by introducing it through the wound and in-
jecting warm water into the bladder, which will wash away
every small piece that remains. It is necessary for the
edge of the gorget to be very sharp at the beak, else some force
must be used to penetrate the bladder, by which the gorget
may go too far & wound the fundus of the bladder: an
accident of this kind once happened to Mr. Broomfield.
The reason why this part of the instrument is mostly dull
is because the cutter cannot get at it to sharpen it on account
of the beak: to remedy this inconvenience I have got some
made so that the sides can be taken off, leaving the

backs only behind; & when taken off in this manner 285
they can be sharpened at the point as easily as at any
other part. The sides are fastened on by means of a screw.
The old form of a gorget, had one sharp edge and
the other blunt: but they are now used with two
cutting edges, so that both sides of the neck of the
bladder may be divided: the edges used also to run
from the back in a curved direction: but I prefer
them straight, & forming an acute angle. —

We now proceed to introduce the director, after
this is done, the patient is desired to take hold of
the outside of the heel, when the surgeon passes
the ligatures, previously fastened to the levist
round the feet, each hand to the foot of the same
side. — Two assistants stand by the side of the
table, & each takes one knee of the patient in his
axilla, & grasps the foot with his hands: & another
assistant takes hold of the directors handle & draws
it to the right side. The surgeon then holds away
the scrotum from the perineum (but it is better that
the assistant who holds the director should also hold
away the scrotum, as the operators hands will thus
be more at liberty) in which he makes the incision
from above downwards, between the anus and
ischium, on the left side: after cutting through
the skin & cellular substance felt for the director;
then take a sharp pointed bistouri, placing
your fingers at the aperture and, to prevent
cutting it, & cut towards the finger till you
find the groove. Then rest the back of
the bistouri on your finger, & putting the point
in the groove of the staff, lay it back. The surgeon
then places the beaks of the gorget in the groove
& taking hold of the handle of the staff with
his left hand, brings it to a right angle with
the body: an assistant then takes the scrotum and



draws it up: the surgeon bears down the handle 287
of the gorget & pushes it into the bladder: & the urine
that is in the bladder now escapes. When the
gorget has got into the bladder, the staff is to be
withdrawn: then introduce the forceps, & take
away the gorget, drawing it carefully, not to make
a new incision. —

— The handle of the forceps should be turned
upwards, as gravity will cause the stone to fall
to the bottom of the bladder: The forceps should
never be held in one hand, but one handle in
each hand. When you have got hold of the
stone, introduce the fingers, by the side of the
forceps, to loosen any part that may be entan-
-gled, & to place the stone in the best & easiest man-
-ner for its escape from the bladder: When the
stone is extracted, examine if any more remain
in the bladder, or if any be broken off from that
stays out. If any vessels be cut use the com-
-mon means to secure them. — The patient is
now to be untied his knees put close together &
laid on his right side in bed. —

As you are about to push in children, they are
often seized with a straining fit: the diaphragm & abd-
-ominal muscles press the viscera of the abdomen on
the fundus of the bladder, & if you push in the gorget during
this straining, you will very certainly cut the fundus
of the bladder: If it come out after you have divided the
neck, & the urine is evacuated, it will be safest to with-
-draw the gorget.

The operation of Lithotomy is much simpler
in Females. Some have advised to introduce the staff into
the bladder, & then with a bistoury, make an opening into
it through the vagina, & extract the stone through it: This
mode will sometimes answer very well: I have operated
in this manner, & the wound healed well, but I prefer the Gorget.

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Amputation

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When treating of wounds I told you, that when the parts were so injured that they could not recover amputation became necessary: if this be deferred till after inflammation has come on, we must then wait till it has subsided. Amputations also become necessary from tumors, as white swellings of the joints. Diseases of the joints often produce hectic fever, & the patient becomes much debilitated by night sweats, loss of appetite &c; & amputation is necessary for his restoration. If the patient's stomach be good we never fear to operate, tho' he be much emaciated. We should never amputate while mortification is progressing (if it has come on) for if it be done, the stump will be very apt to be attacked, & the patient will be obliged to submit to another operation: but if we wait till the mortification has stopped, & the dead parts separated, the bone only will remain to be cut, which will cause but little pain to the patient. Another cause of amputation is, large tumors causing the absorption of bones or joints, also fungus haematodes. If the disease is near, or at the ends of the fingers, it will answer very well to take it off at the 1st or 2nd joint: so that a portion of skin may be left to cover the end of the bone: this done, the edges of the skin are to be brought in contact & kept so by adhesive plaster, & secured by a roller, which as the arteries are so small, will be sufficient to prevent hemorrhage. Sometimes the finger has to be taken off at its articulation with the metacarpal bone: all that is necessary then, is to cut down till you come to the joint: then after the finger is removed, & the vessels secured, bring the edges of the skin together, & apply adhesive plaster, & a roller is to be passed round the hand. When we have to take away the metacarpal bone, it may be done at its articulation with the carpus, or sawed off at any place where it is necessary, with a metacarpal saw, first separating it by making an incision directly over the middle of the bone, from

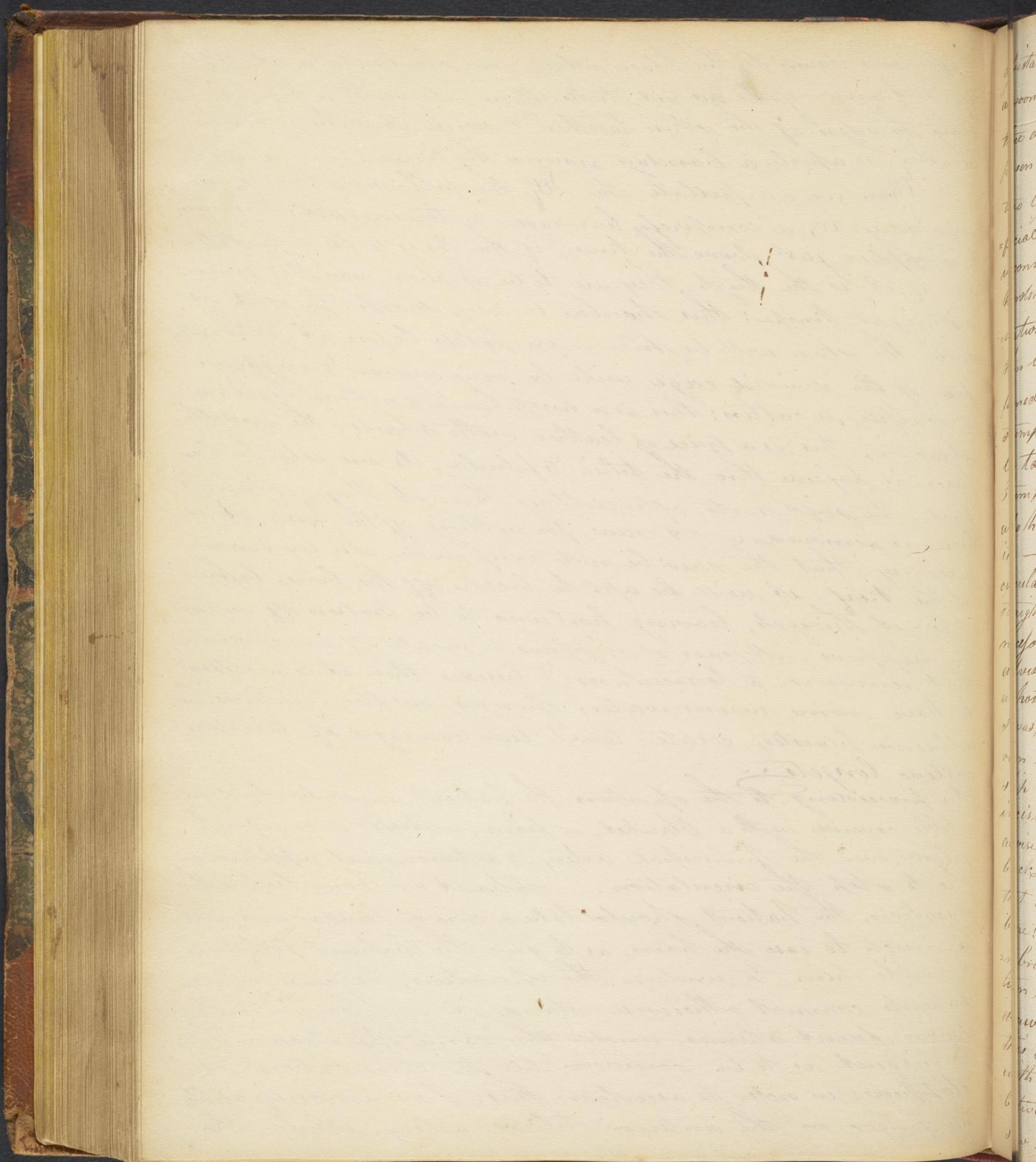
rehabilitation

I have been thinking
 of you very much lately
 and wondering how you
 are getting on. I hope
 you are well and happy.
 I am still in the same
 old place, but I am
 trying to do my best.
 I have been reading
 a great deal lately,
 and it has helped me
 to think more clearly.
 I am looking forward
 to seeing you again.
 With love,
 Your friend,
 John Doe

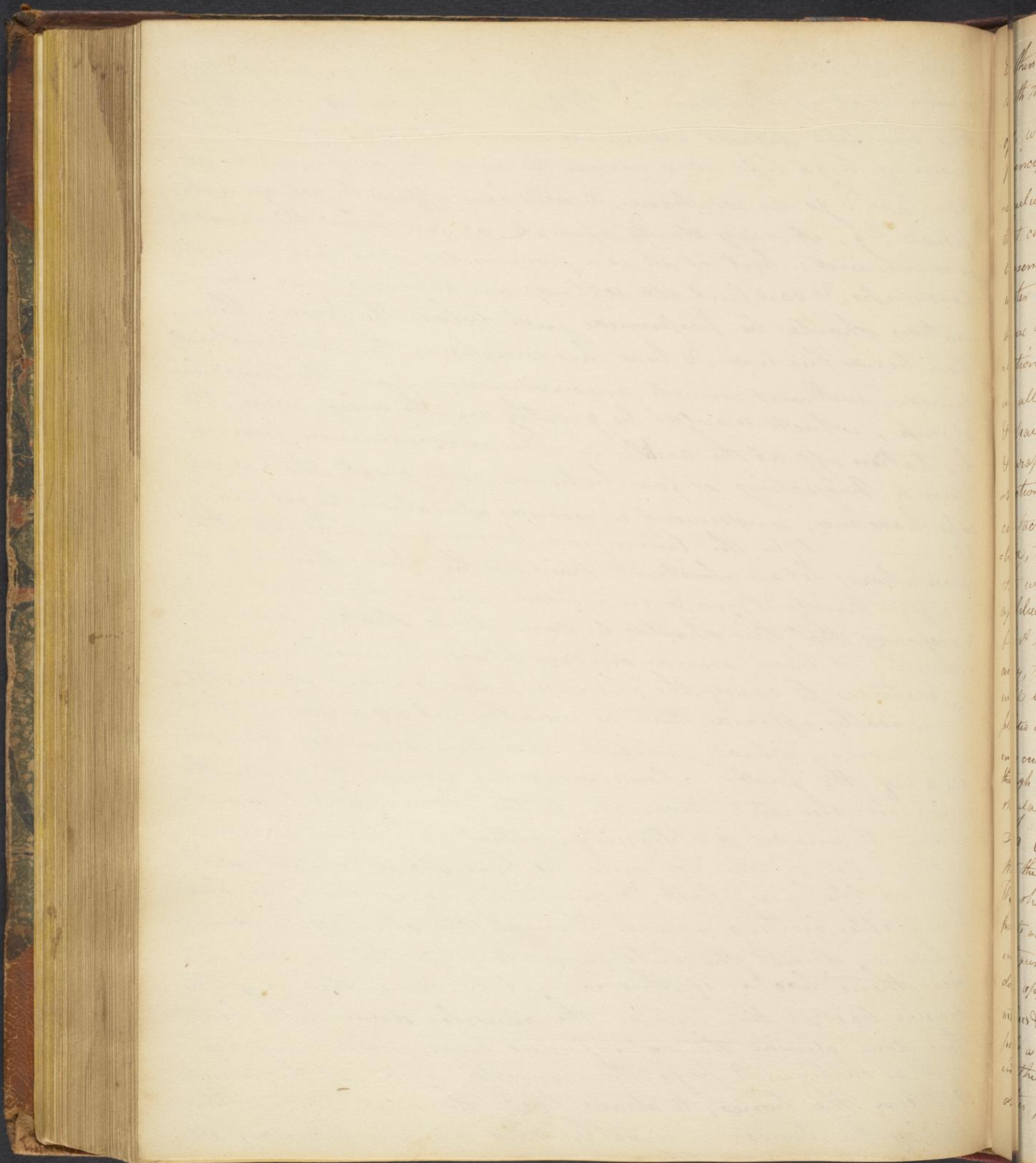
the fingers down to the place where you would take it 291
off: & if any vessels are cut; take them up with a tenaculum;
bring the edges of the skin together, & secure it with adhesive
plaster, & apply a bandage around the band. —

When we amputate the Leg the following things are
necessary: viz. a compress, bandage, a tourniquet: these are
to be applied just above the knee, if the leg is to be amputated;
but if it is the thigh, they are to be applied near the groin.
A straight knife: this should be very sharp: for if it is
dull, the skin will be thrown in folds before it, & the sur-
face of the divided edge will be very uneven & ragged.
A scalpel, a catlin: this is a knife with 2 cutting edges: a
retractor, this is a piece of leather with 3 tails: the middle
piece is passed thro the tibia & fibula, its use is to hold
back the soft parts, after cutting through them, while the
bone is removed. A saw, for cutting off the bone: it is
necessary that the saw be not very wide, else by landing
on the tibia, it will be apt to break off the bone before
it is cut through, leaving portions to be broken off with
the nippers. A pair of nippers to break off any specula
that remains: a tenaculum: & besides these it is necessary
to have some warm water, sponges, needles, ligatures, lint,
adhesive plaster, cerate, tow & two bandages of linnen
called longets. —

In proceeding to the operation, the patient must be laid on
a table covered with a blanket, or firm matras: a compress
is laid over the principal artery, & a tourniquet applied on
this, to stop the circulation. — About an hour before the
operation, the patient should take a dose of Laudanum, not
so much to ease the pain, as to give the patient fortitude
& enable him to undergo the operation, because some
patients cannot otherwise stand it. I have seen a
person faint 3 times, under the same operation. — The
tourniquet is to be screwed till the circulation is
stopped: in order to ascertain this, I commonly apply
my finger on the anterior tibial artery, while the



assistant screws the tourniquet, by which you can tell ²⁹³
as soon as it is stopped. When the injury is near the foot
there are two places where we may operate. If it is a
person of high life who wants to have the appearance of
two legs, & go in company, & who can afford to get an arti-
ficial leg, it may do to operate as far below the knee as
is convenient: but if it is a poor man who has to undergo
hardships, & can but ill afford an artificial leg, the ope-
ration should be performed just below the knee. He can
then bend his knee, & bear his weight on the parts naturally
joined, without much inconvenience from the projecting
stump, which would be greatly in the way, were the
leg taken off at the ankle. The inconvenience from a
stump projecting so far behind, is so great, that a person
who has one, underwent a second operation to get rid of
it. — After the tourniquet is screwed so as to stop the
circulation, let an assistant draw up the skin: then take a
straight knife & make an incision round the leg: it is not
necessary that this should be done at one stroke, as some
advise: I have seen a surgeon place himself in such
a posture to carry the incision round at one stroke that
I was really afraid that he would cut off a piece of his
own nose, which might have been done by the least
slip of the foot. Some surgeons advise to make the
incision straight through to the bone: but I would
advise to make it obliquely, so that the skin on the
back part of the leg may be brought in contact with
that on the fore part, & completely cover the ends of the
bone: after cutting round through the skin & cellular me-
mbrane, dissect the integuments from the muscles and
turn them back, if this cannot be done they must be
drawn back: then divide the muscles down to the bone:
this done divide the interosseous ligament & muscles
with a catline, & pass the middle strap of the retractor
between the bones, to draw back the soft parts: then
saw off the bones: I mostly saw off the fibula first



When the tibia: it is necessary to make long strokes 295
with the saw, else the kerf gets clogged. After the leg is
off, wash the surface with warm water & search for the
principal arteries, which must be drawn out by the ten-
aculum, & secured with a ligature; when all the arteries
that can be seen are taken up, the tourniquet must be
loosened, to see if any of the flesh arteries bleed: warm
water should be poured on the part, & the patient should
have a little wine & water to drink to excite the circula-
tion, & expose all the bleeding arteries. - When they
are all secured, wash away the whole of the clots of blood
& draw down the integuments over the ends of the bones
& wrap a bandage round the stump, to prevent the contra-
raction of the muscles: secure the edges of the wound, in
contact by adhesive plaster; but before they are ap-
plied, the ligatures are to be brought out at the corners of
the wounds: & a piece of lint spread with cerate is to be
applied between the edges, to prevent their union by the
first intention, for if they unite before the ligatures come
away, they will prevent their being thrown out & an abscess
will be formed causing great pain to the patient; after the adhesive
plaster apply lint spread with simple cerate, then a piece of tow: afterwards the longlets
in a crucial form & secure them by a roller. The tourniquet should be kept on
though loose, after the leg is dressed to be in readiness if hemorrhage
should occur. The patient is now put to bed with the stump on a soft pillow.

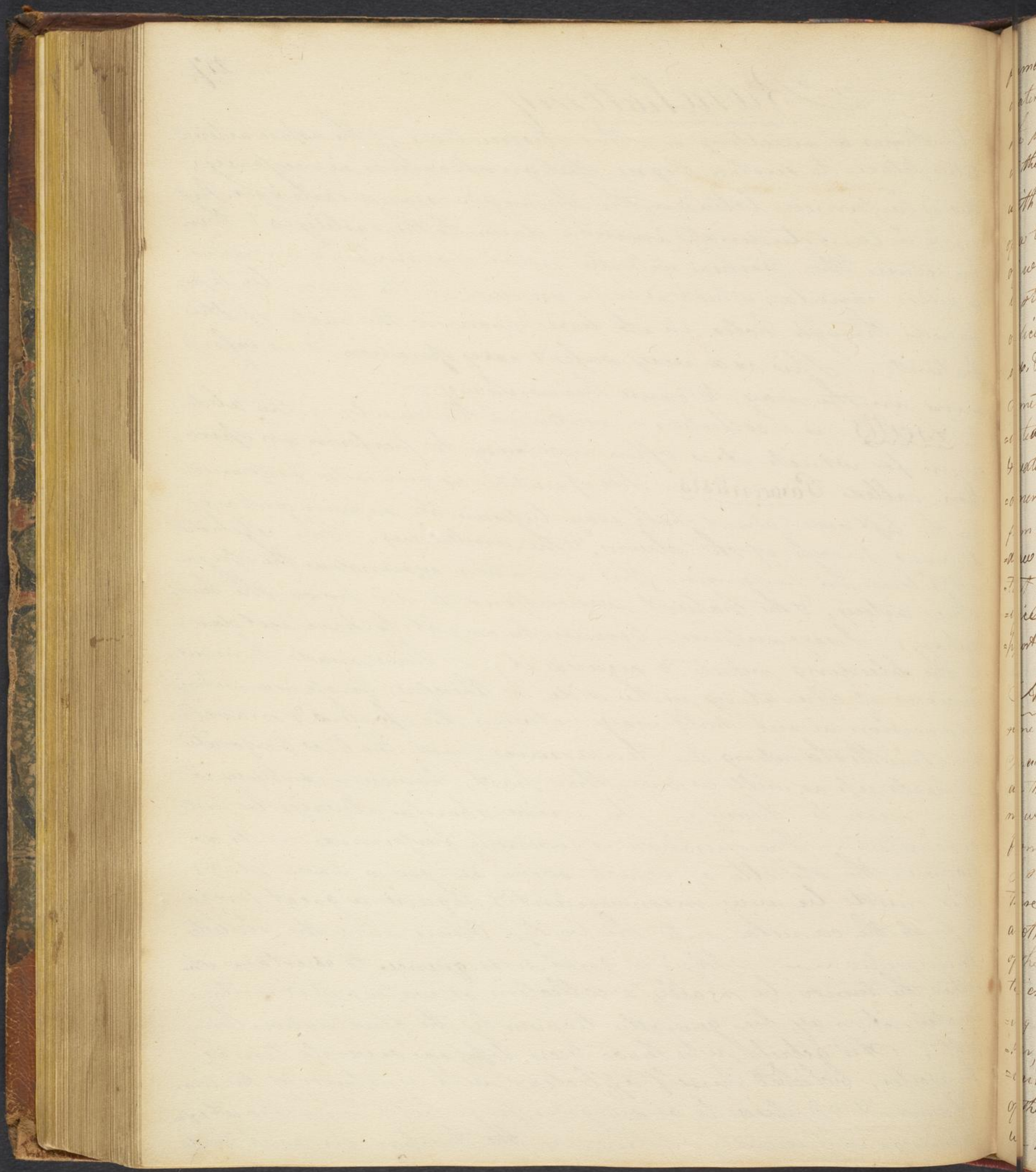
In Amputations of the Thigh. The instruments are much the same
tho' the catline is not wanted, & the retractor is only to be slit in the middle.
We should operate as low down as possible, but so that none of the diseased
parts are left - After making an incision through the skin dissect the
integuments, as in the other case: divide the muscles down to the bone; this
done apply the retractor & saw the bone: after washing take up all the large
arteries & veins: in old people the arteries are sometimes ossified: then
pass a needle round some portion of the muscles, including them
in the ligature, the better to prevent hemorrhage. All the
other processes are similar to those I described before.

Bronchotomy

297

Sometimes a swelling or other obstructions of the *aspera arteria* takes place to such a degree that an operation is necessary; this is performed between the thyroid & cricoid cartilages. First make a longitudinal incision down to the cartilages; & then puncture the trachea with the point of a knife, & introduce a silver canula, which is to be secured in its place by tapes passed through holes in its base, & round the neck of the patient. This is a very safe & easy operation, & no vessels run in the way, to cause hemorrhage. ---

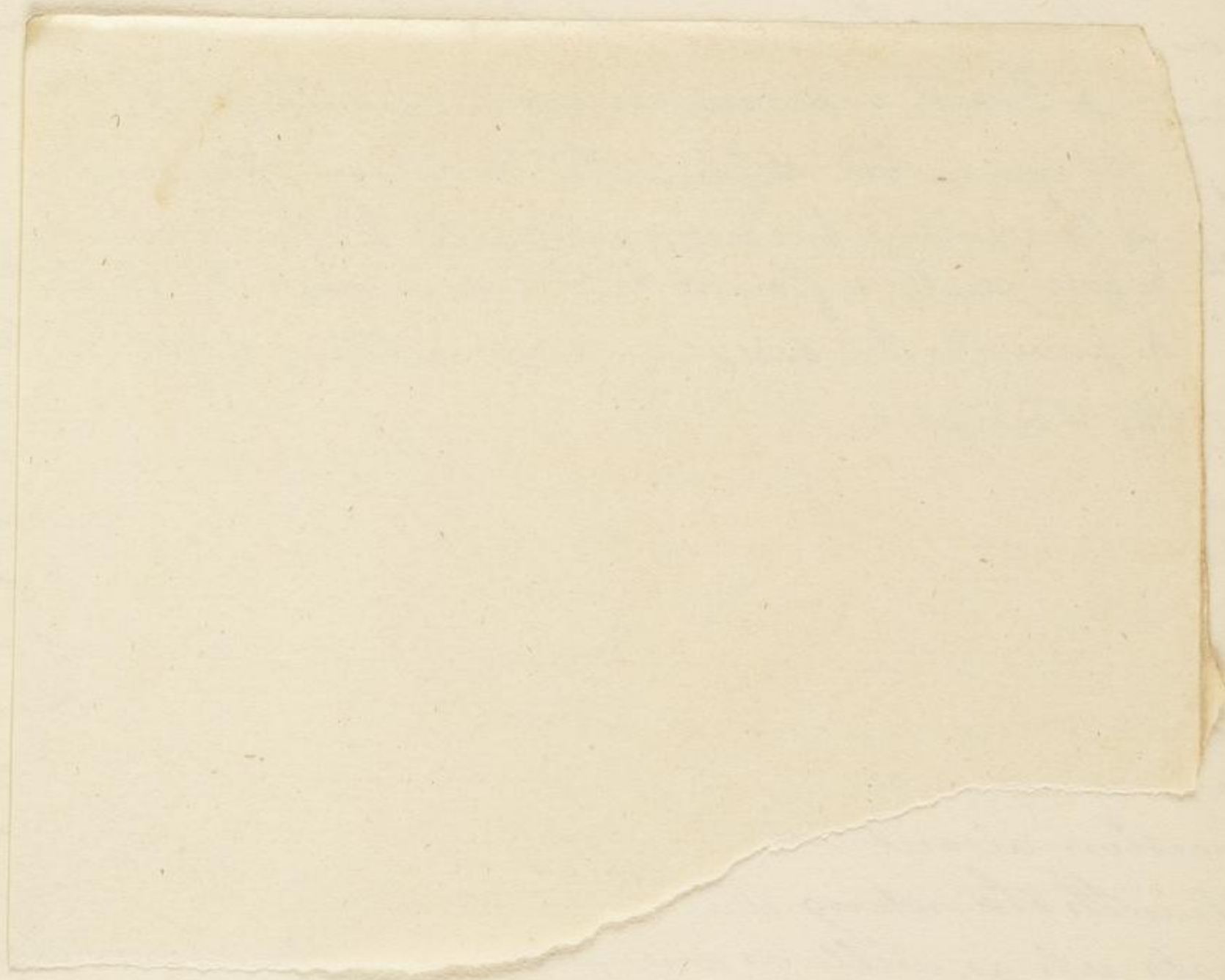
Ascites. is a collection of water in the cavity of the abdomen, for which it is often necessary to perform an operation, called Paracentesis. The operation is generally performed in the left side about half way between the superior anterior spinous process of the ilium, & the umbilicus. The celebrated Mr. Cline in performing this operation, wounded the epigastric artery, & the patient was supposed to die from the hemorrhage. I say supposed, because he ought to have cut down to the bleeding vessels & secured it. --- This made him suspicious of operating in the side, he therefore proposed making an incision about half way between the pubis & navel, & notwithstanding the tenderness of that part that is perforated it heals up as well as any other part, however contrary it may seem to theory. --- The urine should always be first evacuated. --- The operation is generally performed with a trochar, the stylette of which some surgeons have flat; this must be very inconvenient & require a great force to push the canula into the belly. Others have the stylette triangular. --- It is of great consequence to ascertain whether the tumor be really a collection of water; if it contain water, it may be generally known by the fluctuation being felt. An actress who had been tapped several times for ascites, believed herself afflicted with a return of the complaint, & applied to a surgeon for relief; he without examining sufficiently, plunged the trochar in, as it had



formerly been done, but to his great astonishment no 299
water flowed. In about 3 days she died, & by examination
the wound was traced into the uterus, & found to terminate
in the hips of a fetus. I generally perform the operation
with a common lancet, which answers very well; & instead
of a trocar introduce a large female catheter, the round end
of which will pass more easily, & will not be so liable to
be stopped by the intestines coming in contact with the
orifices, which are in the sides of the catheter, but near its
ends. & it is evacuated without interruption.

Sometimes Dr Parrish in a case of Scrophulous where the
tumour had supplicated, & where there was
a hereditary predisposition to Dithersis recommended
a full diet, & flannels to be worn next the skin
to prevent the disease from settling upon
the Lungs - it is evacuated with
some wine on the abd.
instead before
evacuated, with
no is com-
b over the or-
ally for its evac-

Ch. An aneurism is a swelling of the artery, or
some of its branches, which is not the true
aneurism, are those that are just
no wound of the cutis - as occurs
from accident, independent of any disease of the artery -
I shall confine myself principally to true aneurisms;
there is a greater tendency to aneurism in one part than
another. They may occur in the aorta, & different parts
of the body at the same time, but are mostly confined
to one part of the arterial system only, which yield-
ing to the momentum of blood, grows weaker & weak-
er, & at last bursts - The Proximate Cause of aneu-
rism, is a disproportion between the momentum
of the blood, & power of the artery - Of the remote cause
we know but little; excessive use of ardent liquors



formerly been done, but to his great astonishment no 299
water flowed. In about 3 days she died, & by examination
the membrae were traced into the uterus, & found to terminate
in the hips of a fetus. I generally perform the operation
with a common lancet, which answers very well; & instead
of a trocar introduce a large female catheter, the round end
of which will pass more easily, & will not be so liable to
be stopped by the intestines coming in contact with the
orifice, which are in the sides of the catheter, but near its
end. & will allow the water to flow and without interruption.
Sometimes while the water is flowing or just after it is evac-
uated, the patient faints. He should have some wine
& water given him, & a degree of pressure made on the abd-
omen, to keep up some of the tension that existed before
from distention. After all the water is evacuated, with-
draw the catheter, & bring the edges of the membrae in con-
tact by adhesive plaister, & apply a compress over the or-
ifice. This done, pass a roller round the belly for its sup-
port.

An Aneurism is a morbid dilatation of the heart or
some part of the arterial system.

Aneurisms are divided into true & false: the true
are those that are just described, & are attended with
no wound of the cutis. The false are such as occur
from accident, independant of any disease of the artery.
I shall confine myself principally to true aneurisms;
there is a greater tendency to aneurism in one part than
another. They may occur in the aorta, & different parts
of the body at the same time, but are mostly confined
to one part of the arterial system only, which yield-
ing to the momentum of blood, grows weaker & weak-
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rism, is a disproportion between the momentum
of the blood, & power of the artery. Of the remote cause
we know but little; excessive use of ardent liquors

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is said to be the cause: it is said by some that violent 301
strains lay the foundation for aneurisms. — I have
seen false aneurisms in the arm from contusions: It has been
said that aneurisms have been sometimes occasioned by
bleeding, in consequence of the lancet passing through the
vein & wounding the outer coat of the artery, leaving it
too weak to resist the force of the blood. To ascertain
this Mr. Hunter laid bare the carotid artery of a dog, &
then dissected away the coats of artery, one after another
till he came to the internal one: the wound was then
tied up & the dog left to himself: about 3 weeks af-
ter the dog was killed, the artery was examined, and
found to be of the natural size, not having dilated in
any way: & the artery had got well. — The circumstance
which lays the foundation for aneurism, is a diseased
state of the artery, which renders it too weak to resist
the impetus of the blood. — An aneurism is not simply
a dilatation of the artery, but there is likewise a rough-
ening of the internal coat, which, at times becomes ossi-
fied: it is said that aneurisms occur less frequently in
women than in men: I have however seen several cases
of aneurism in women. They occur most frequently
in young people. It is of great consequence to distinguish
between aneurisms & tumors of any other kind: tho'
the difference is obscure, and often not to be perceived
especially in old aneurisms. In recent aneurisms the
pulsation ~~is~~ ^{is} felt by pressure: but after some
time, when the swelling & stertumescence are much
increased, putting the parts on the stretch, & coagulum
is formed, the pulse becomes obstructed, because the
stroke of the heart has to be continued, through the
coagula, to the finger. In all recent cases we can
remove the blood contained in the swelling by pressure
made some time over the heart, tho' it will soon
return when the pressure is removed, whereas a tumor
remains immovable. And if you put your ear

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near the diseased part, while you hold your finger on 303
the part in order to reduce it, upon removing them a his-
sing noise is heard by the blood rushing into the aneu-
rism. — A tumor may form on an artery, or be so sit-
uated as to partake of the pulsations, & in that respect
resemble an aneurism: but we can place the finger behind
it so as to remove it off the artery, & the pulsation ceases;
even when we are unable to raise the tumor from the artery,
we are still able to distinguish it from an aneurism, by
the particular pulsation, for when a tumor is situated
on an artery, we are sensible of the whole body moving.

When the dilatation takes place in the thorax it is
known by a palpitation of the heart, & difficulty of
breathing. When the dilatation of an artery has commec-
enced, the progress is much slower than we should su-
ppose, because as the artery dilates, the impetus is
divided over a larger surface: the aneurismal bag, as
it enlarges contracts adhesions to the ~~surrounding~~ parts;
& the internal parts wear away to a great size. The di-
latation commonly takes place on that side the nearest
to the heart, or on that on which the impetus is greatest,
though sometimes they are equally dilated. — The pressure
they occasion frequently causes the absorption of the coa-
gulae, or perhaps of a portion of the surrounding parts: I
have seen a portion of the ribs absorbed by it: in this
manner it goes on, till it arrives at the skin, when it
bursts, & the patient dies from a sudden gush of blood.
In an aneurismal sac, there will be a number of
laminae or coagulae formed. — The general indications
in the treatment of aneurism is, to lessen the quantity
of blood in the trunk of the artery, rest & low diet
are also necessary. — Bandages have been applied, &
are said to have performed cures. — I shall speak
chiefly of popliteal aneurism. At first there is
no pain — only a pulsating tumor, ~~but~~ ^{which} ~~the~~ ^{as it} enlarges
till it produces pain, by putting the large nerves on the

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stitch. The surest way of curing it, is to tie up the artery 305
The mode of performing this operation some years ago, was
to make an incision into the aneurismal sac, while the
tourniquet was screwed tight on the upper part of the
thigh: & after discharging the blood: to tie up the artery
just above the sac. But this is frequently unsafe on acc-
ount of the diseased state of the artery, which would be
likely to burst at the place where it is tied. — To remedy
this Mr. Hunter proposed to take up the artery about half
way between the knee, & anterior spinous process of the
Ilium: as well as to avoid the hemorrhage which
frequently occurred from the diseased & ossified artery
which would not allow the sides to unite: & the limb
will be nourished by the anastomosing branches: it
will sometimes happen however, that they are not suf-
ficient for this purpose & mortification ensues — This
I suppose is not owing to any want of sufficiency in the
size or number of the anastomosing branches, but to the
tension or pressure of the swelling obstructing the cir-
culation: I saw one case of this kind, which I suppose
was owing to this cause.

In proceeding to perform the Operation
first fix a tourniquet on the upper part of the thigh
but so as to allow the artery to pulsate: then make the in-
cision about 4 inches in length, longitudinally, in the course
of the fibres, down to the sartorius muscle, & dissect al-
ong the lower edge of it. — It is necessary to pay particu-
lar attention to this: for if you get above this muscle
you may cut down to the bone & not find the artery.
After dissection through the skin & cellular substance feel
with your finger for the pulsation of the artery: it is best
to use the handle of the knife to expose the artery, for
as there is a great number of anastomosing branches
they would probably be wounded by the sharp edge
of the scalpel. — There is a thin fascia before you come
to the artery, through which you must scratch, with

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the point of the knife, a little to one side of the 30th artery to avoid wounding it. After the artery is brought into view, it may be taken up by means of a silver bodkin or as Mr. Abernethy advises by passing a couple of ligatures around it at about half an inch from each other, & then separate the artery between the ligatures, by which means, he says the ligatures come away sooner. — The artery is divided to ratios of the tension: I have seen the ends recede three fourths of an inch from each other when divided. — In whatever way it is performed, the ends of the ligatures are to be brought outside of the wound, & a pledget applied so as to press the bottom of the wound close together, that the outside of it may not heal too soon & thereby form an abscess: I have seen an abscess from this cause extend from the knee, to the anterior spinous process of the ilium. The aneurismal tumor, after this treatment most frequently disappears: sometimes however, this is not the case, & the tumor suppurates: when this is the case, if the tumor does not open of itself, by an ulcerative process, it should be opened by an incision: if this is neglected very serious consequences may occur: I once knew it produce an abscess of the knee joint, & the patient died. — When the artery bursts & allows the blood to flow in the cellular texture, the pulsation may be perceived at first but the blood stagnating there, soon coagulates, & the swelling & tension prevent its being felt: & then it is impossible to say whether it is an abscess or aneurism. —

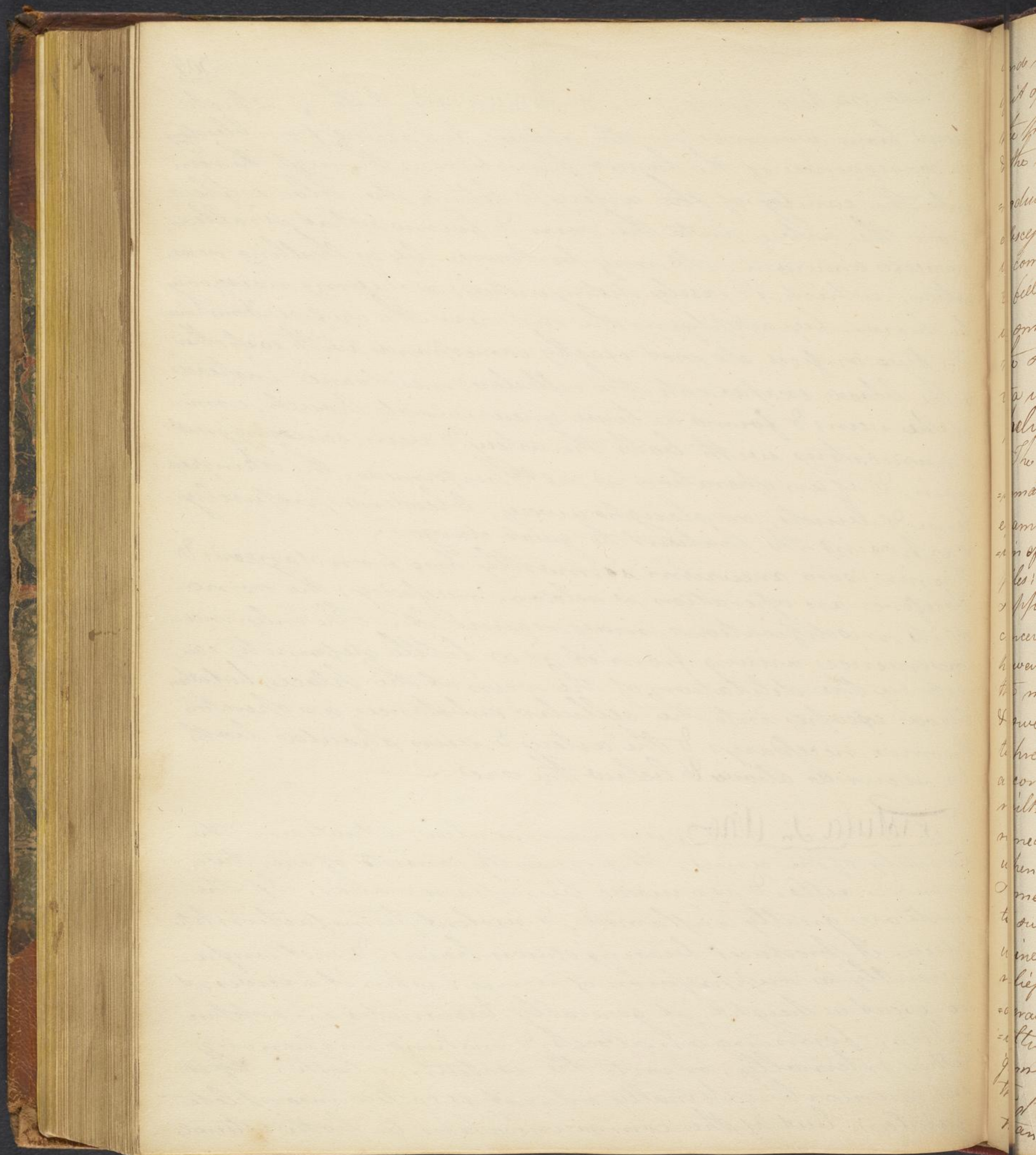
When this is the case we should apply a tourniquet & make a puncture into the tumor: & if it be an aneurism it must be tied up: when the tension is great part of the coagula should be swept out to relieve the tension. In 8 or 10 days the tumor will have separated & the extravasated blood come away: — if on puncturing the tumor proves to be an abscess, the matter is allowed to flow out. —

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There are two kinds of False Aneurisms, both of which occur from wounds in the artery. One occurs from bleeding in consequence of the lancet puncturing through the vein into the cavity of the artery, & letting the blood flow from the artery into the vein, & forms what is called varicose aneurism. It may be known by a throbbing sensation, which is easily distinguished; a hissing noise may be heard, by applying the ear near the orifice. Sometimes the two orifices do not exactly correspond with each other & the blood escapes into the cellular membrane, instead of the vein; & forms a tense aneurismal hauch, communicating with both the artery & vein, causing great pain, & if an operation is not performed, the skin grows tense & bursts, or sloughs away, bleeding profusely, & exposing the patient to great danger.

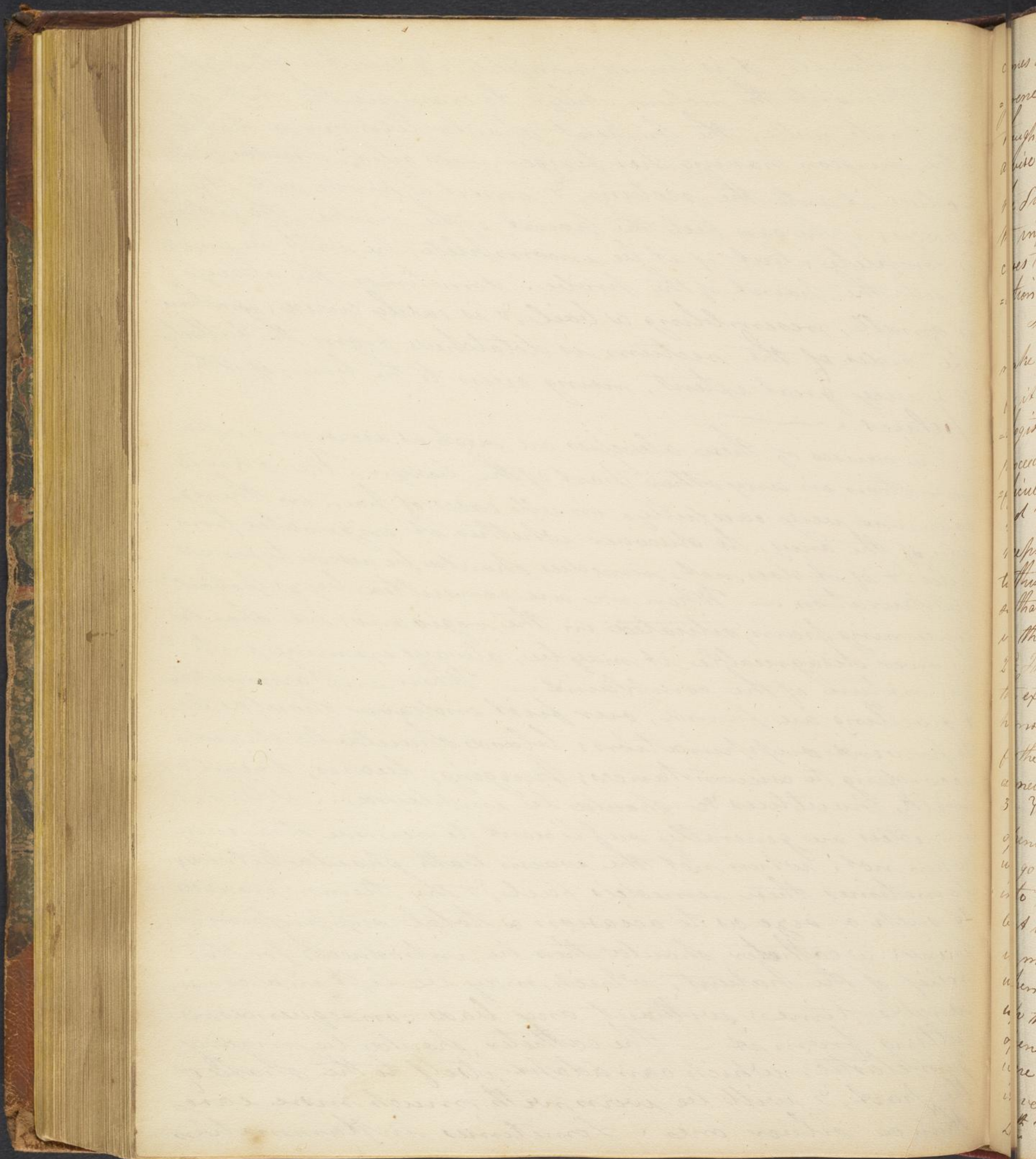
The varicose aneurism is mostly free from danger; & therefore an operation is seldom necessary; tho some of its modifications may require it. The only inconvenience arising from it is a little deformity, caused by the dilatation of the vein at the place; but when blood escapes into the cellular substance, an operation becomes necessary; & the artery & vein should both be secured above & below the sac.

Fistula In Ano, is a cavernous ulcer, situated in the vicinity of the anus. It frequently consists of one, two, or more cells, & is caused by inflammation. If the parts are greatly inflamed, & violent tumefactions take place, it produces bearing down pains, & not unfrequently a suppression of urine; when it arrives at so great a height, it generally terminates in suppuration, forming an abscess, & making an opening, either externally, or into the rectum, or both. If it communicate externally only, it is called incomplete fistula; but if the communication be both external,



and internal, it is termed complete: & occult or blind 311
if it opens into the rectum only. To examine the state of
the parts well, the patient should lean over a table
& the surgeon having his finger well oiled, should intro-
duce it into the rectum, & insert a probe into the
abscess; if he can feel the point of the probe, the fistula
is complete; but if it be incomplete, he will be unable
to feel the point of the probe. Sometimes the abscess
is small, resembling a boil, & is easily cured; sometimes
the sides of the rectum is detached from the buttocks
to a very great extent, rising even to the brim of the
pelvis.

The causes of these abscesses are such as occasion inflam-
mation in any other part of the body. We should
examine very carefully, in all cases of pain in the reg-
ion of the anus, to discover whether it originates from
piles; & if it does not, remedies should be used to prevent
suppuration. When we are consulted by a patient
concerning pain, situated in the region ani, we should,
however disagreeable it may be, always examine into
the nature of the complaint. When inflammation
& swelling are found, our first endeavor should be
to prevent suppurations: blood should be drawn
according to circumstances; purging, leeches, bread &
milk Punctices &c. should be employed. These
remedies are generally sufficient to remove strangury
when not. When not the warm bath should be tried.
Sometimes these remedies fail, & the tumor increases
to such a size as to occasion a total suppression of
urine: a catheter should then be introduced for the
relief of the patient, which may be left in a consi-
derable time: without any bad consequences, res-
ulting from it. The catheter should be made of
gum elastic, which can adapt itself to the shape of
the part, & will be worn with much more ease
than a silver one. Sometimes inflammation



comes on in the buttocks with a disposition to gangrene: I would advise you to read Patt on this subject; though, from the success I have had in such cases, I would advise you to apply them under similar circumstances. If the Surgeon be called in early, he may generally resolve the inflammation; but unfortunately, we seldom see these cases till suppuration has taken place, when an operation is necessary for the cure —

In all cases where there is a collection of matter, we should make an opening in the most prominent part, & not wait for it to open naturally; & we should enjoin the antiphlogistic regimen, till inflammation subsides; I shall proceed to mention the circumstances which render it difficult to perform a cure without a surgical operation.

1st When the fistula is complete, the formation of pus keeps its sides distended, & prevents its healing; & next to this the ulceration of its sides; if the orifice is small so that the matter cannot readily flow out, it collects in the cavity, & the granulations cannot come in contact.

2nd The suppurating cavity is prevented from healing by the external orifice closing too soon; & here the patient thinks himself getting well, but his hopes are soon disappointed for the matter has to force its way out again, or to make a new opening. —

3rd When the fistula is complete, faeces pass into the opening & are pressed out at the external orifice, when we go to stool. Then occurs, the matter makes its way into the rectum, & will be discharged in that way, but it will frequently be obstructed by the faeces, tho' in most cases, the opening is obliquely downwards & when the patient goes to stool, the faeces will close up the orifice; but I have seen cases where the orifice opened upwards into the rectum, & whenever faeces were voided they would get into the abscess, & distend it very much, causing great distress to the patient.

4th When nature is unequal to cure without the

distance of a surgeon - as 1st when the cavity is on one side 315
of the sphincter, & the patient goes to stool, the contractions will
draw the detached side from its natural situation, destroying
all the newly formed granulations & preventing its cure
2nd when the patient goes to stool, the gut is somewhat pro-
truded, & any adhesions that may have taken place in
its contracted state are destroyed. It is to this, that the small
portion of blood is owing, which appears after stool.

5th When owing to any cause the healing of the fistula
has been prevented sometime, the parts become callous
as has already been explained.

6th The practice of filling the abscess with some substance
called by some, creeping to the bottom.

7th When the extent of the fistula is carried a consider-
able distance into the pelvis, & even to the upper part of
its lum, accompanied with caries, nature seldom
effects a cure, & even the art of the best surgeon is often failed.

8th The general health of the patient; this should be
attended to, as it will materially affect the cure.

The Operation for Fistula In Ano, consists in dividing the
sphincture & detached gut, because, being cut prevents
its acting so as to injure the granulations; & the faces
can readily drop out, without protruding the gut. For
the particular manner of performing this operation
I would advise you to read Patt. My object has
been to show the principles on which the healing is
effected, although I shall make some remarks on
the mode of operating. When the fistula is complete
the patient is to lean over a table, when the surgeon
after oiling his finger, is to introduce it in ano, then
introduce a bistouri through the fistulous cavity
till it comes in contact with the finger, thro' the
aperture, draw away the finger & bistouri together
the bistouri divides all the parts between the upper
opening, & the external end of the rectum. The pa-
tient will feel considerable pain in the introduction

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of the bistouri; from its edge cutting as it is inserted. 317
to remedy this, I have a silver cap that goes on the point of
the bistouri, & extends along one side of the handle, being
a little wider than the blade, which secures the edge
when the bistouri is introduced, by pushing a little
knob at the end of the cap, it falls off, leaving the edge
exposed. Another method when a silver cap is not
at hand is to place a piece of waxed linen on the
edge; this should be long enough to reach to the end of
the handle, so that when the bistouri is introduced we
can draw away the linen & divide the part. - This
mode answers extremely well. Sometimes the opening
into the rectum is so low down, that we can pass a
director from the alveoli into the rectum, & cut at the
anus: in this case, the parts may be divided by a
scalpel, but when the fistula is so high up, that
to divide the parts with a bistouri might endanger
a hemorrhage, we should pass a ligature through it bring
it out at the anus & tie it: though not so tight as to occa-
sion great pain. By this we prevent hemorrhage, and
the part within the ligature will be divided by ul-
cerative absorption: the wound caused by the ligature
will heal nearly as fast as the ulceration goes on, so that
by the time the ligature has cut through, the wound
will be nearly healed, tho' it does not always heal so fast.
The Hare Lip, derives its name from its resemblance to
the Hare's Lip. It mostly takes place in the upper lip
& is but one slit, tho' there is sometimes two. They most
frequently exist at birth, tho' sometimes they happen
from accident. When they occur at birth, the suture
uniting the maxillary bone is, at times, not well con-
solidated, owing to the want of the gentle pressure
of the lip. In such cases the lip should be immediat-
ely united. - In proceeding to do this, we should
have a pair of sharp, strong scissors, & cut a small
piece off from each lip, taking care to cut out the

upper angle, or else the lip, however well united 319
below, will not heal alone. After this is done the edges
are drawn equally together & secured with two silver pins
having steel points, into which the silver pins can pass
forming with the threads the twisted suture, always
taking off the points of the pins, after they are introduced
to avoid hurting the patient; this is especially necessary
in children. The pins may be withdrawn in about
4 days, which can be done by taking hold of the ends
with a pair of nippers, as the pins will stick pretty
fast. Lay your finger on the threads, when you
draw the pins to prevent drawing it off. The thread
may be left one or two days longer, by which time
it will be perfectly well. The thread will be agglu-
tinated to the part by the mucus of the nose.

Strictures in the Urethra

By stricture, is meant the diminution of any canal
at a particular part: when this occurs in the urethra, it is
most frequently at the bulb, tho' sometimes they happen
at the middle, or beyond the bulb, at the membranous
part, tho' rarely. — They are of two kinds, spasmodic
& permanent, though these are often combined. — The first
effect of a stricture in the urethra, is to lessen the flow of
urine, & the patient often does not suspect any disease
untill in voiding urine, he finds it pass drop by drop.
He will now have frequent trials to make water pos-
sible a little at a time, & this not without considerable
straining; a gleet generally attends it, owing to the straining
& irritation there is in passing urine. The parts between
the stricture & bladder become very much dilated, & the
other part diminished, resembling in its effects a string
tied round the penis. — The stricture commonly runs
regularly round the urethra, but not always, for it
is sometimes found at one side only. — Whenever it is
supervenes in such a stricture the passage is completely closed. —

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The causes are cold weather, cold feet, intemperate use 321
of strong drinks; I had a patient in whom it was caused
by too long retention of semen in coitus. The great difficul-
ty there is in ascertaining the causes, is the reason that the
suppression is not generally treated with success; but is
sometimes a cause of it.

Treatment. The permanent stricture may generally be
dilated by a bougie; much depends on the preparation
of bougies, & upon their make. I generally use waxed linen
Pieces of fine linen cut to a point, dipped in pure
wax, & rolled smoothly up, make the best bougies; the
point must be small, but the body sufficiently stiff
to bear the necessary force for introducing it. The bougie
may be introduced as far as it will enter & left for some
time, with its point in contact with the stricture, till
the irritation has subsided, & then press it gently forward
by which means the stricture will frequently be over-
come. When the bougie is introduced, the patient
often faints, & a cold sweat will break out over him;
this seldom happens after the third introduction
of the bougie; when the stricture is small, it may then
be dilated. At times, cases occur in which the structured
part is so close as not to admit the point of the bougie, in
such cases we sometimes succeed by letting the patient
pass a bougie down to the stricture, & press the point
of it on the stricture, for the space of an hour or two every day.
Sometimes the canal is thrown to one side, making the
passage irregular; when this occurs, the point of the bougie
is to be bent to one side & then introduced.

Sometimes the pressure & irritation of the urine accu-
mulated in the parts occasion ulceration of some of the
parts behind the stricture forming an artificial open-
ing called fistula in perineo. In such cases there are
two modes of relief, by the caustic or lancet. Caustics
was first used by Mr Hunter & afterwards by Mr Home,
I have used it myself, in several cases with very good

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effect. The caustic is rolled up in the end of a bougie 323
and tied by a very fine thread; the end of the caustic may
project a little. To prevent the caustic burning the canal
before it reaches the stricture, a small cap of waxed linen
secured to a fine thread, & fixed to the end of it answers
very well. When the bougie is passed down to the stricture
the cap may be withdrawn by means of the thread.

When the stricture is at, or before the bulb of the urethra
it may be divided by a lancet, defended with a silver can-
nula. The distention of the urethra behind the stricture
makes it almost impossible to divide any other than
the strictured part; when the cannula is introduced to
the stricture, the lancet may be pushed through the
stricture & thus divide it; but the circumstance of the
curvature of the urethra, makes it difficult to divide
it from the back, & the curved cannula answers very
well in some such cases. When the stricture is dilated
a bougie or catheter should be introduced & kept in several days,
when if there be a fistula in perineo it will soon heal.

In spasmodic structures, to treat it by caustic is hurt-
ful. The warm bath, or a small piece of tobacco, or the
end of a bougie introduced, to be in contact with the
stricture, will frequently relieve; an anodyne glyster
nerve section, liquid Laudanum, or emetics have proved
serviceable.

Cancerous Breasts

When tumors are formed in the breast, if they do not
yield to the antiphlogistic regimen, with the use of mercury
it is best to extract them early. There are two modes of
extracting them, by caustic, & by the knife; the last me-
thod is best, as we are able to distinguish better between
the diseased & sound parts; this may be done by one
incision made directly over the breast, if the integu-
ments are sound, but if ulceration, or indurations
of any part of the skin have taken place, it will
be necessary to make two incisions, so that the

THE END OF THE WORLD

diseased part, may be embraced between them & removed. 325

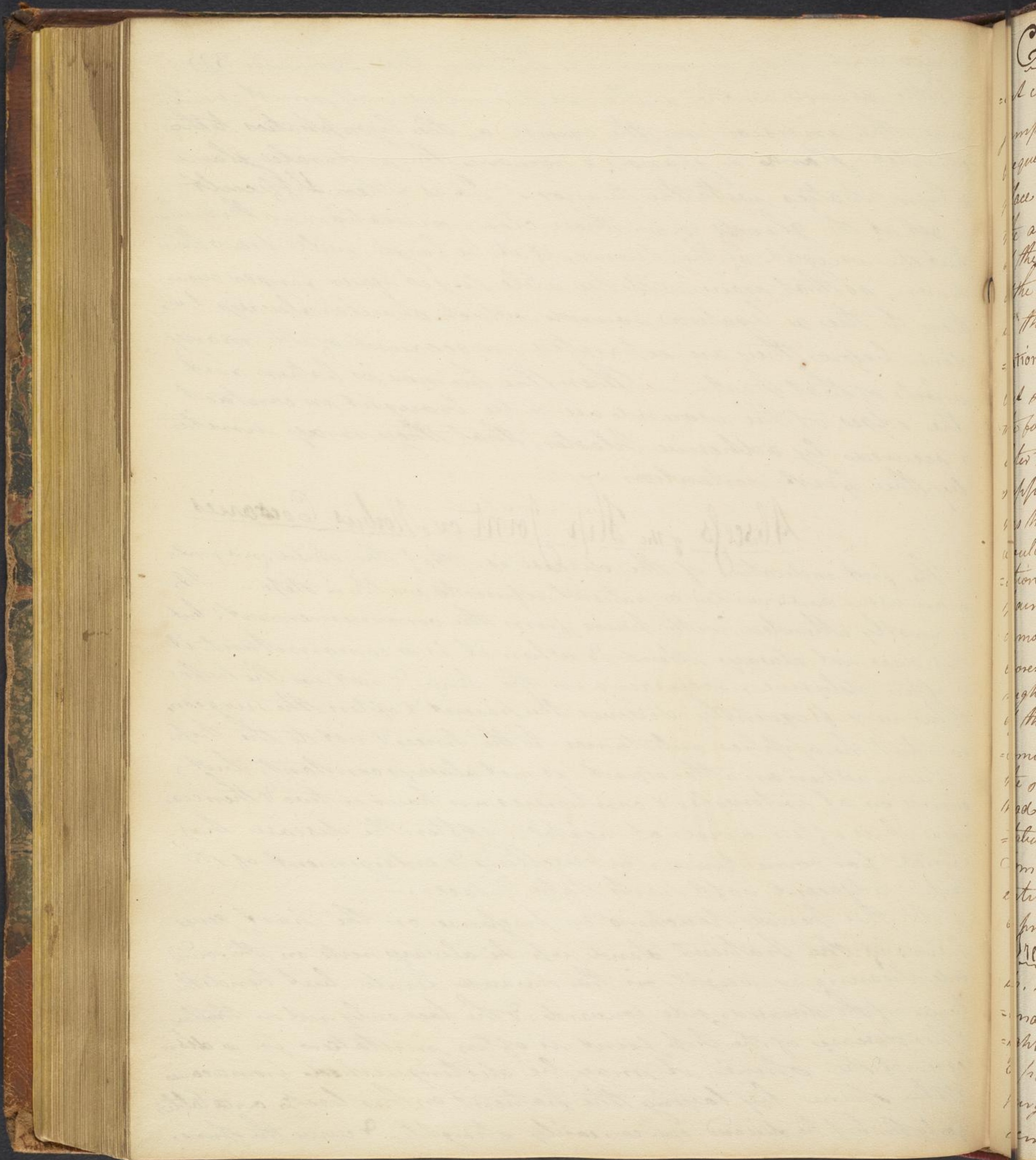
If the glands in the axilla are tumefied, we must continue the incision in the course of the lymphatics, to the affected glands or glands & remove the indurated glands & lymphatics with the tumor. It is often difficult to get at the glands from their close situation in the axilla but the weight of the tumor, if it be large, will draw them down, so that you will be able to get your finger above them to tie a ligature round, which should always be done before they are separated, on account of the many vessels of that part. — When the tumor is taken out, the edges of the wounds are to be brought in contact & secured by adhesive plaster, that they may unite by the first intention —

Abscess of the Hip Joint or Morbus Coxae

The first indication of the disease is, that the child, (as it generally occurs in children about 4 years old) or patient refuses to walk or step. It is mostly attended with pain from the commencement; but this does not always attend, & when it is a concomitant, it is often delusive, occurring in the knee, & not in the hip. This very frequently deceives the parent & often the surgeon, so that he applies substances to the knee & not to the hip.

Pain, when an attendant, is not always constant, but comes on at intervals, & continues an hour or two & then ceases: it is often worse at night. After the disease has existed for some time, a swelling & enlargement of the hip & adjacent soft parts take place.

At this period touching or pressure on the part gives pain: if the patient stand up he always rests on the sound side, bearing no weight on the diseased limb, but bends the knee of the diseased side forwards, & the toes only rest on the floor. This disease of the hip joint is often mistaken for a disease of the spine: it may be distinguished from a curv of the spine by laying the patient on his back on a table; if only the hip be diseased, you can easily straighten & curve the spine.



Causes. It frequently comes on without any appar- 327
ent cause, but it often occurs from blows on the hip & from
jumping. After some time, as the disease progresses, we
frequently find the limb considerably shortened; this takes
place in consequence of the bone being pushed out of
the acetabulum, by tumors formed in it, & the head
of the bone is drawn up on the dorsum ilii, by the action
of the muscles. This circumstance of luxation, by disease
in the joint has given rise to the term of "spontaneous In-
luxation". In common the luxation is upwards & backward
but sometimes it takes place downward & forward, from
the force of gravity & relaxation of the muscles. Sooner or
later the parts suppurate, & the bone is found to be carious;
suppuration does not, however, always take place, for it
has happened that a new acetabulum has formed, which
would allow of some motion to the limb. When suppu-
ration has taken place, it is attended with more or less
pain, & the matter which is formed is discharged by one
or more openings. In this state the patient frequently
loses his appetite, he becomes much emaciated, has
night sweats, & hectic fever next ensues; in the progress
of the disease the thigh dwindles away very much be-
coming much smaller than natural. In some cases
the shortening of the limb does not take place, for the
head of the bone becomes diseased as well as the ace-
tabulum, and forms an anchylosis with the socket.
Sometimes both the acetabulum & head of the bone are
entirely removed, & then if you examine, you can pass
a probe through into the pelvis.

Treatment. Unfortunately we are not often called
in, in the forming state of the disease. I say unfortu-
nately, for if we were called in early, the disease might
sometimes be counteracted. When called to
a patient with those symptoms, bleed & then
purge every other day for 2 or 3 months. The best
remedy for this purpose I have found to be

* Where the patient cannot be confined to his bed
I have used a curved Splint, made so as to reach
from some distance above the pelvis to the
foot,

Jalap & cream of Tartar. It should be given so as to produce 329
4 or 5 evacuations daily. You would suppose that children could
not bear such a severe regimen, but experience proves that
they can, very well. It is always necessary to prevent all motion.
The patient should be put upon a vegetable diet; after this
a warm bath may be used: I think it is more beneficial
when impregnated with muriate of soda, or some neu-
tral salt: I have used salt brine once or twice a week.
I have mentioned the tumefaction of the hip, because
it is from this circumstance that the existence of the
disease is ascertained. - The application of caustic on
the hip is frequently advised: but I have tried them
in several cases & have found them of no efficacy. The
application of leeches to the part, is often of service.

Of the Venereal Disease.

This is a disease which occurs very frequently
in the practice of a physician. It is produced by a poison
formed in the Genital Organs, & is communicated most
commonly by the connection of the sexes. It is not nec-
essary (as some suppose) that the skin should be ruptured
in order to produce this disease.

The primary symptoms are Gonorrhoea & Chancre, to
which some add Bubo. It is extremely doubtful whether
gonorrhoea produces chancre, or chancre gonorrhoea: it is
certain that gonorrhoea often runs its course without pro-
ducing chancre. - Many experiments have been made by
different persons, in order to ascertain this point, but
they differ very much in their opinions - Mr Hurst
in his experiments which he has related, asserts that
gonorrhoeal matter produced both chancre & confirmed
syphilis - Dr Thruston says, that in the experiments
which he made with gonorrhoeal matter, neither

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gonorrhoea nor chancre was produced: the experiment 331
he performed was by dipping lint into gonorrhoeal mat-
ter, & introducing it into the urethra & it had no effect.

Now his experiments prove too much, for it ought to
have at least produced gonorrhoea, it is certain there-
fore that the matter he made use of was too much diluted.

It is supposed by some, that mercury is never
necessary in order to cure gonorrhoea, but that it is in chancre
& lues venerea: this is not always the case; gonorrhoea
sometimes requires mercury, especially if it be attended
with buboes. -- Gonorrhoeal matter is only a modification
of the venereal virus: it exists in the urethra as a grade
of lues venerea, & I believe whether there be ulceration
or not, gonorrhoea is Syphilis of a mild grade. --

Of Gonorrhoea

Gonorrhoea is a preternatural discharge from the gen-
ital organs: it is seated in the urethra, in men & in the
vagina in women. -- It comes on at various intervals
after the disease is contracted from a few hours to
seven or eight days: it most commonly appears from
3 to 8 days after being infected: it sometimes does not
appear for 6, 7, 8, & even 9 weeks after having contracted
it. -- Sometimes it appears without any premonitory
symptoms: but generally it is preceded by infla-
mmation. -- It was the ancient opinion that the dis-
charge from the urethra, was owing to ulcers formed
in it. This opinion has of late years been denied, & it
is now clearly ascertained that it often exists without
any ulcers being formed. It is sometimes difficult
to distinguish gonorrhoea from other discharges which
sometimes affect those parts, thus gleet sometimes
attacks the urethra & produces a discharge from it. --
The premonitory symptoms of this disease are a
severe itching in the urethra & Glans Penis, redness
at the orifice, inflammation soon comes on a

discharge of pus takes place (sometimes this discharge is the first ³³³ symptom). Pain of a pricking or scalding nature after discharging the urine, a sense of fullness & tightness along the urethra; a frequent desire to make water, the urethra becomes contracted, & the urine is discharged in a very small stream, violent erections & chordee sometimes take place, the penis becomes of a red & shining appearance, ulceration sometimes take place & fistulous ulcers are formed, sometimes opening into the urethra, & sometimes in the corpus cavernosum; the discharge is of a white or yellowish colour, sometimes very thin, and sometimes grumous blood is mixed with it; the testicles sometimes become very sore & tender; the glands in the groin sometimes become inflamed from sympathy.

Inflammation sometimes affects the prepuce it is then called Phymosis; when the skin is drawn back over the glans penis & contracted there it is called Paraphimosis. During the chordee hemorrhage frequently takes place from the urethra. Inflammation sometimes ends in gangrene. These symptoms are not always combined together, & are not all to be seen in every case. The symptoms in women are much milder, commonly there is only a discharge from the vagina; when the urethra is affected there is a scalding & desire of voiding urine very frequently.

Of the Cure of Gonorrhoea

Those who consult us in this disease, are always extremely anxious for a speedy cure; but we can by no means determine when it will certainly be cured. It is sometimes in our power to cure it in a few days sometimes it baffles us for months. When the gonorrhoea is seated in the extremity of the urethra it is generally cured in 8 or 10 days; but where the urethra is deeply affected & the prostate gland is inflamed,

By the Court of Commissioners

it is very obstinate to cure. There are instances of 335
persons contracting this disease, whilst under the use of
mercury in Syphilis venerea. The design in promoting a cure
is to change the nature of the disease, & prevent their morbid
secretion.

The remedies are general & local. In the early stage
of the disease, if the inflammatory symptoms run high
the antiphlogistic regimen should be used, active purges
of calomel & jalap, or salts, abstinence from ardent spi-
rits: Venerection is not in every instance necessary,
but it is sometimes of very great advantage: to persons of
a weak constitution. Opium should be given, the dep-
-cting remedies should be used sparingly & sometimes
the bark is necessary. If there be no inflammatory
symptoms, the antiphlogistic regimen should not be
used: the remedies are demulcent drinks, they act by
cleaning the bark, & removing the matter which is
formed, they are balm tea, flaxseed tea, barley water,
melasses & water &c. & little exercise, diuretics. In some
instances these medicine have performed a complete
cure. Nitre & turpentine have been used as diuretics
& Balsam Copaiva from 20 to 30 drops. Powdered resin
mixed in syrup & 10 grains of it taken two or 3 times
a day.

If consulted when recent, you will commonly
find the penis red & smooth, & a small swelling at the
end of the urethra, and/or urina, burning, scalding & a
discharge of pus. In such cases the membrane of the
urethra only is affected. Where these symptoms on-
ly exist, a purge of calomel & rhubarb, or salts, abst-
-inence from wine & fermented liquors, & a mild astrin-
-gent injection performs a cure. The following may
be used: Sulph: Tinct: gr viij Sac: Sat: gr v Aqua 3viij. to
be injected 5 or 6 times a day: very little exercise should be
used: if inflammation should supervene, venerections &
the antiphlogistic regimen should be used: the strength

of the injections should be increased if the running continues: & by gradually increasing it, we may at the end of several weeks, make it. of vitriol $\mathfrak{zj}$ & Sac: Sat: $\mathfrak{zj}$. - 337

Corrosive Sublimato is sometimes usefull commencing with one grain in eight ounces of water, seven or eight times a day. - If inflammation runs high, & the disease extends along the urethra, leeches, & general bleeding: mucilage of gum Arab: milk & water, or oil warm, is all the injections that can be used. - The distress of making water increases as the inflammation extends, & the discharge is very much augmented, violent shudder. - If the shudder be very violent, opium should be given at night, glysters of opium are very usefull. An injection of from $\mathfrak{zj}$ to $\mathfrak{zj}$ of Colomel $\mathfrak{zj}$ Gum Arab: $\mathfrak{zj}$ of Laudanum $\mathfrak{zvi}$ of water injected 4 or 5 times a day: if at occasion any smarting more water must be added. - A solution of alum has been used: also an infusion of oak gally: - Sulph: Turc: $\mathfrak{zj}$ Sac: Sat: $\mathfrak{zss}$ corrosive: $\mathfrak{grij}$ Aqua $\mathfrak{zviij}$ is sometimes found usefull. -

When the bladder sympathises & is very irritable, glysters are to be used: it is attended with a great deal of pain at its neck, a small discharge of urine & mucus: & sometimes causes hectic fever & death. - It sometimes is necessary to throw injections into the bladder, barley water answers the purpose very well: a flexible catheter should be introduced through the urethra into the bladder & the injections passed through it. - If strictures exist in the urethra, leucogies should be used. -

An occasional symptom attending this disease is Swelled Testicle called Hernia Inguinalis. This generally takes place when the discharge is stopped: a sense of soreness in the testicle, & a heavy dull pain are its premonitory symptoms. - The patient should be confined in a recumbent posture if practicable: if not a suspensory bandage should be used: Venesection & purges leeches to the scrotum, vomits, opium to relieve the

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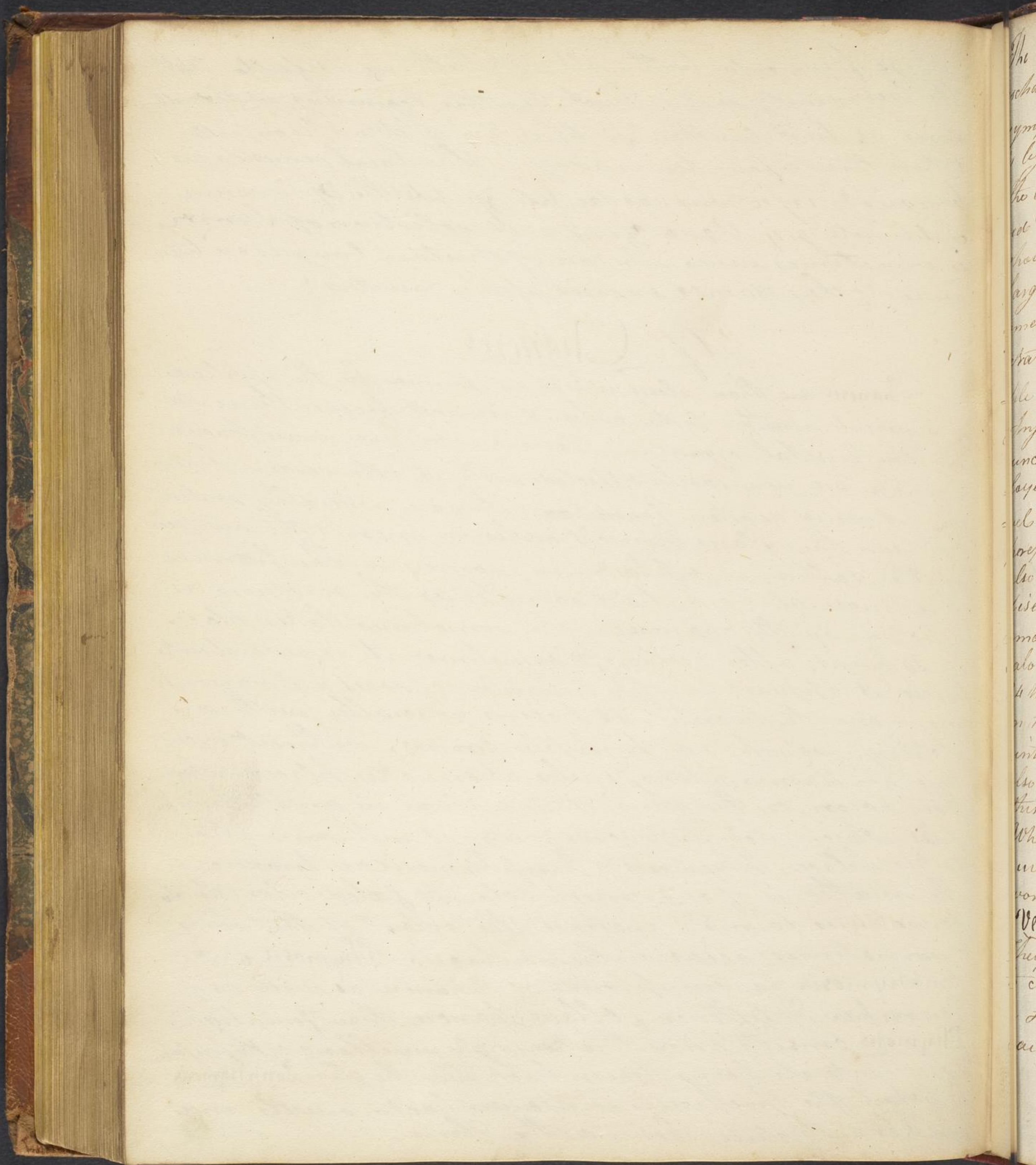
pain, should be prescribed. After the swelling is 339
relieved, the epididymus frequently remains indurated
for a long time, & sometimes it continues throughout
life! - frictions with mercury have been found useful
to remove it. - Owing to sympathy of the parts there is
pain often felt in the smalls of the back & loins, & nausea
& vomiting come on: - -

The chordee or painful erections of the penis are relie-
ved by opium: cold water or Sac: Sat: may be used. -
Bleeding from the urethra has frequently removed it. Rest
low diet, & purges. Balsam capivi, & turpentine are use-
-ful. - In cases of very large hemorrhage, a large bou-
-gie should be introduced, & pressure made by a roller.
This disease is not so bad in women as in men. In women
the discharge commonly comes from the vagina but
sometimes the urethra is affected, & when it is there
is a odor urinae, & the bladder is more apt to sympathize
than in men - The Cure is nearly the same as in men,
& cleanliness is of the utmost consequence. When the disease
becomes chronic, very irritating injections are to be used
such as Cor: Sul:; Tanic:; Camphar: &c. - When the remedies
are successful the pain & other symptoms go off gradua-
-lly, the discharge decreases, & after a while it subsides -
Very often, after all the other symptoms go off, a discharge
continues called Gleet which is the most difficult to
cure. - Whether gonorrhoea be treated by general or local
remedies, it sometimes terminates in gleet. It is a pre-
-ternatural discharge of fluid from the urethra in men
& vagina in women, without any pain or inflamma-
-tion: it consists merely in an increased secretion of
the fluid naturally secreted from the parts. The rem-
-edies for it are tonics, such as Peruvian Bark, mode-
-rate diet &c. - If these fail, stimulants are to be used
active purges; Balsam capivi has been found of great
advantage - Resin 8 or 10 gr two or 3 times a day and
increased to a scruple, turpentine, Sol: mortis

nubigo ferri, cold bath, salt water bath, are useful. 341
The best remedy is the Tinct. Canthar. beginning with small
doses as Tinct. Canthar. $\mathfrak{z}\mathfrak{ss}$ Aqua $\mathfrak{z}\mathfrak{vi}$ a table spoonfull
taken three or four times a day. The local remedies are
bougies & injections; as Sac. Sat. $\mathfrak{z}\mathfrak{ss}$ uti Alb. $\mathfrak{z}\mathfrak{i}$ Cerussive
Sublimate $\mathfrak{gr}\mathfrak{i}\mathfrak{j}$ Aqua $\mathfrak{z}\mathfrak{vi}\mathfrak{i}\mathfrak{j}$ - A solution of alumina
is sometimes used. In case of stricture bougies are to be
used; if they do not succeed apply caustics.

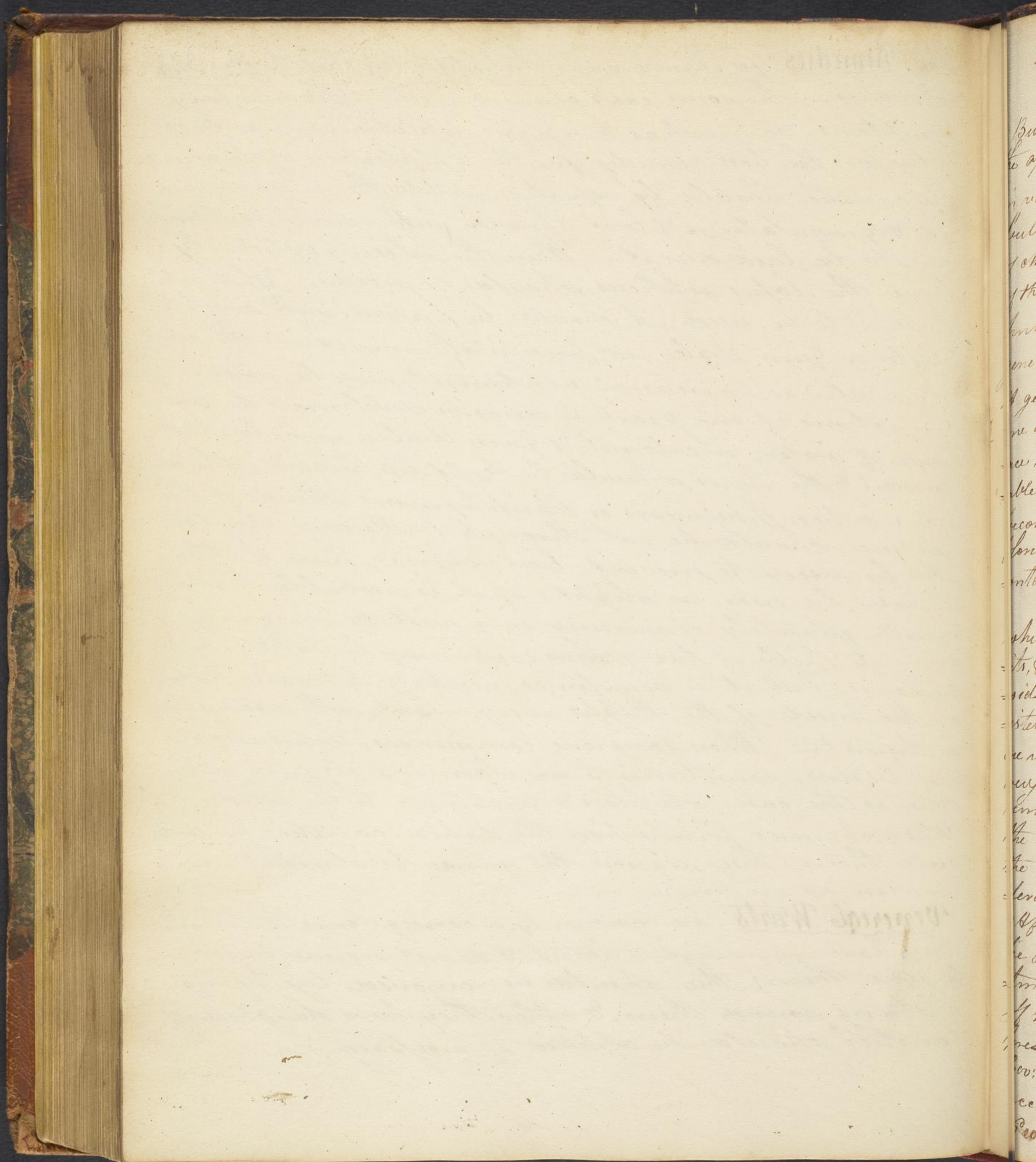
Of Chancres

Chancres are those ulcers which are formed by the application
of venereal matter to the cutis, & is most frequently seated
in the Genital organs. Persons who have once had a
chancere are very easily affected with it afterwards. They
do not occur as often Gonorrhoea, they are generally seated
between the glans penis & cutis in men, & the surface
of the Labia, nymphae, &c. in women. The prepuce
of the penis, glans, cutis & sometimes the scrotum is
affected with chancres. It sometimes takes place
in 24 hours, after coition, & sometimes it is several weeks
before it appears. The number of sores are various
from one to twenty, it begins generally with an
itching, redness, & a small pimple forms, without exci-
ting inflammation, & ulceration takes place; when
they pass on the skin, they appear in small pimple-
ples which ulcerate, & scabs form; if inflammation
takes place, Phymosis & Paraphymosis are produced,
the matter is of a greenish colour & fætid color; though
sometimes forms & increase the extent of the sores
& sometimes occasion hemorrhage. Phymosis and
Paraphymosis are symptoms of Chancre as well as of
Gonorrhoea, & oftener follow chancre than Gonorrhoea.
Phymosis consists in a thickening & swelling of the prepuce
& prevents its being drawn back over the glans. Paraphymosis
is when the prepuce is drawn back, swells and
makes a structure behind the Glans.



The Remedies for chancres are, extirpation by caustics & 343
escharotics. In some cases chancres excite inflammatory
symptoms, so much as to require depletion. - Caustics
is by far the best remedy for the extirpation of chancres;
the caustic should be repeated until the ulcer appears
red & granulating, & laid spread with simple ointment
should be laid over it. When the ulcer is extremely
large the lapis septicus should be used. When cal-
omel is to be used it should be mixed with simple
cerate or Gum Arabic; red precipitate mixed with sim-
ple cerate; or mercurial ointment may be used. -
Injections of one grain of corrosive sublimate to an
ounce of water, or calomel & Gum Arabic, may be em-
ployed; & the penis should be kept up towards the ma-
wel; when phymosis or Paraphymosis attends it the
prepuce should be cut through. Mercury should
also be used to prevent lues venerea, even if the
disease be ever so slight; if it is probable that a
small quantity of mercury only will be necessary,
calomel pills of two grains each may be taken every
24 hours; but it is sometimes necessary to make friction
on the inside of the thighs every night with mercurial
ointment. When gangrene commences, hemorrhage
also begins, sometimes to an alarming degree, when
this is the case styptics & blisters are to be used. -
When chancres form upon the Labia, caustics generally
cure them, they require the same treatment in
women as in men.

Venercal Warts, are commonly a consequence of chancres
They have no venereal taint & do not require mercury
to cure them; they should be removed by tying
a string round them, & after they have sloughed off
caustics should be applied if necessary. -



Of Buboos

Buboes are swellings of the lymphatic glands caused by the application of the venereal virus to them. They occur in various situations, & wherever lymphatic glands are, there buboes may be; they commonly form in consequence of chancres, but sometimes they are the first symptoms of the disease. Dr. Adams says, it is in no instance a primary symptom of the venereal disease. Buboes generally form on the side on which the chancre is situated; it generally commences with pain, & a small tumor in one of the groins, & unless prevented, ulceration takes place very soon, they are at first circumscribed & are movable underneath the skin, but after a short time they become diffused: the color of the skin is a remarkable florid red. It is a local disease & the constitution is uncontaminated at first.

We should first attempt the cure by Resolution which is to be effected by C&S, local & general, purges, vomits, & mercury: mercurial ointment rubbed on the inside of the thighs, leeches to the tumor & afterwards blisters: cathartics every other day & a very low diet. There are very few instances in which it is necessary to cut very deep in order to open them: for they should generally remain till the skin becomes very thin: caustic and the lances are the methods for opening them; where the buboes are very large, the caustic, I think is preferable, but if small the lance should be used. After the evacuation of the matter, poultices should be applied: if these fail, caustics, mercurial ointment & red precipitate &c. should be employed. If the patient is of a scrophulous habit, the following prescription has been found useful. *R* Hemlock gr 64
 Cor: Sub: gr viij made into 64 pills. For a more particular account I refer you to Adams on morbid poisons: Pearson on the venereals &c.

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Of Lues Venerea (strictly so called)

The different species of this disease, if suffered to go on, produces what is called Lues Venerea, Syphilis or Pox. The parts which are first attacked are the skin, tonsils, nose, mouth, throat, fauces, & sometimes the tongue. In the last stage it affects the periosteum, tendons & fascia of the bones. —

It commences with blotches on the skin & ulcers in the throat: the tonsils are the usual seat of the inflammation: it is sometimes attended with pains in the head, languor & fever — It is to be cured only by the immediate recourse to mercury, by frictions, & by the blue pill, or calomel taken into the stomach: fumigations of mercury, nitric acid & Gum Arabic $\mathfrak{z}\mathfrak{j}$ to $\mathfrak{z}\mathfrak{vi}$ of water — a table spoonfull twice a day. Caustic is sometimes necessary. —

Nodes occur upon all the bones of the body but most commonly on those which are thinly covered, as the forehead, tibiae, ulnae, radius, &c. They are hard circumscribed tumors arising out of bones: tendons & ligaments are much less liable to this disease. —

Ophthalmia has in some instances been excited by syphilis, & sometimes by gonorrhoeal matter applied to the eye. It is to be cured by salivation & frictions. — For a further account I refer you to the works of Abernethy & Pearson. —

Suppression of Urine

In this disease the patient is unable to discharge the urine & is attacked with various distressing symptoms. — It arises either from a tumor near the neck of the bladder; abscesses near the anus. — The pressure of hemorrhoidal tumors. a stone in the bladder getting into its neck. — a spasmodic contraction at the neck of the bladder, or any part of the urethra. — tumefaction of the prostate gland &c. —

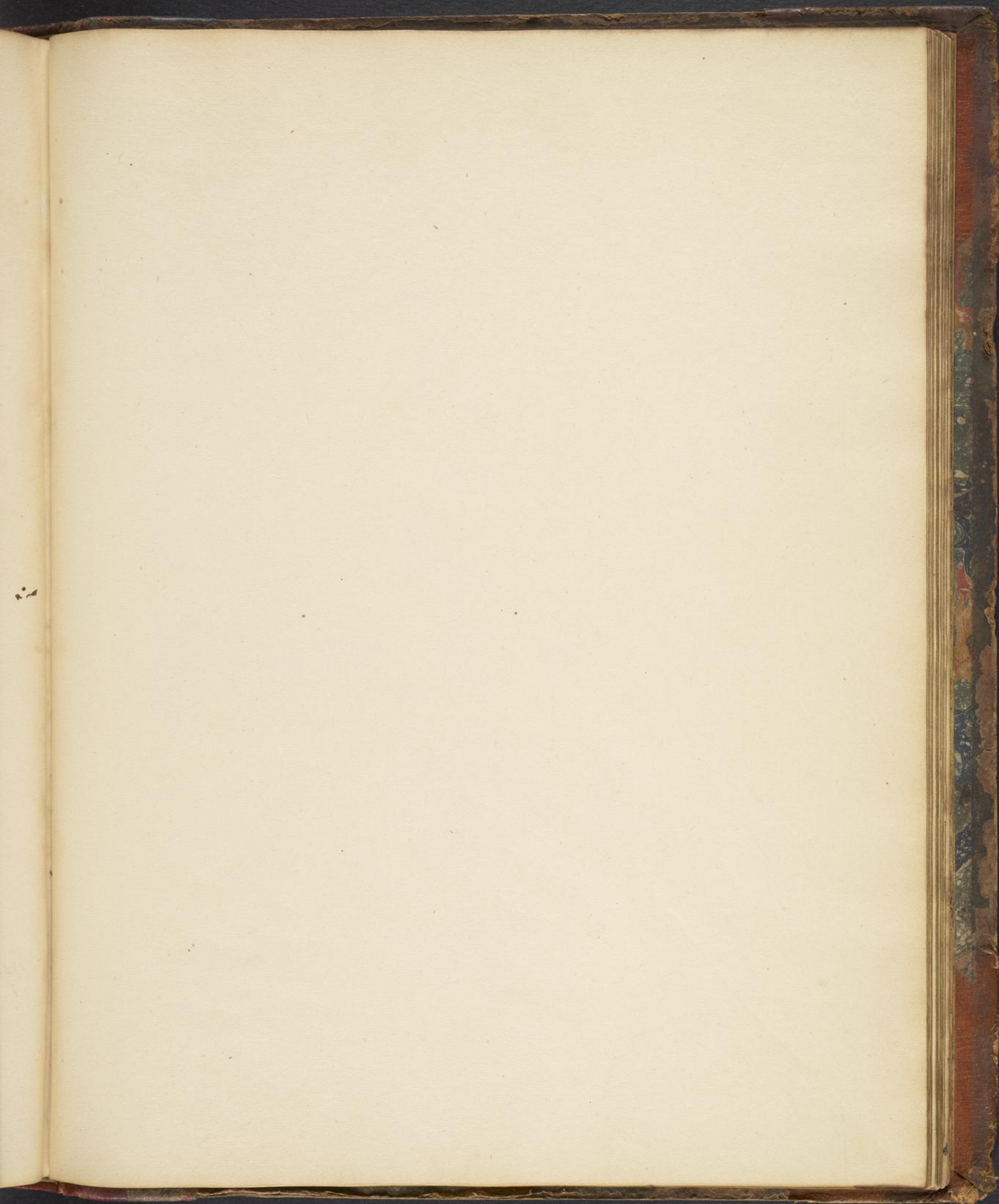
If it arises from calculi in the bladder, Mr. Hunter's elastic forceps, or a bent probe, should be employed. If from spasms, the bougie must be used. — If there be copious hemorrhages should be prescribed, or a glyster made with a tea-spoon full of opium, & an ounce of thin starch —

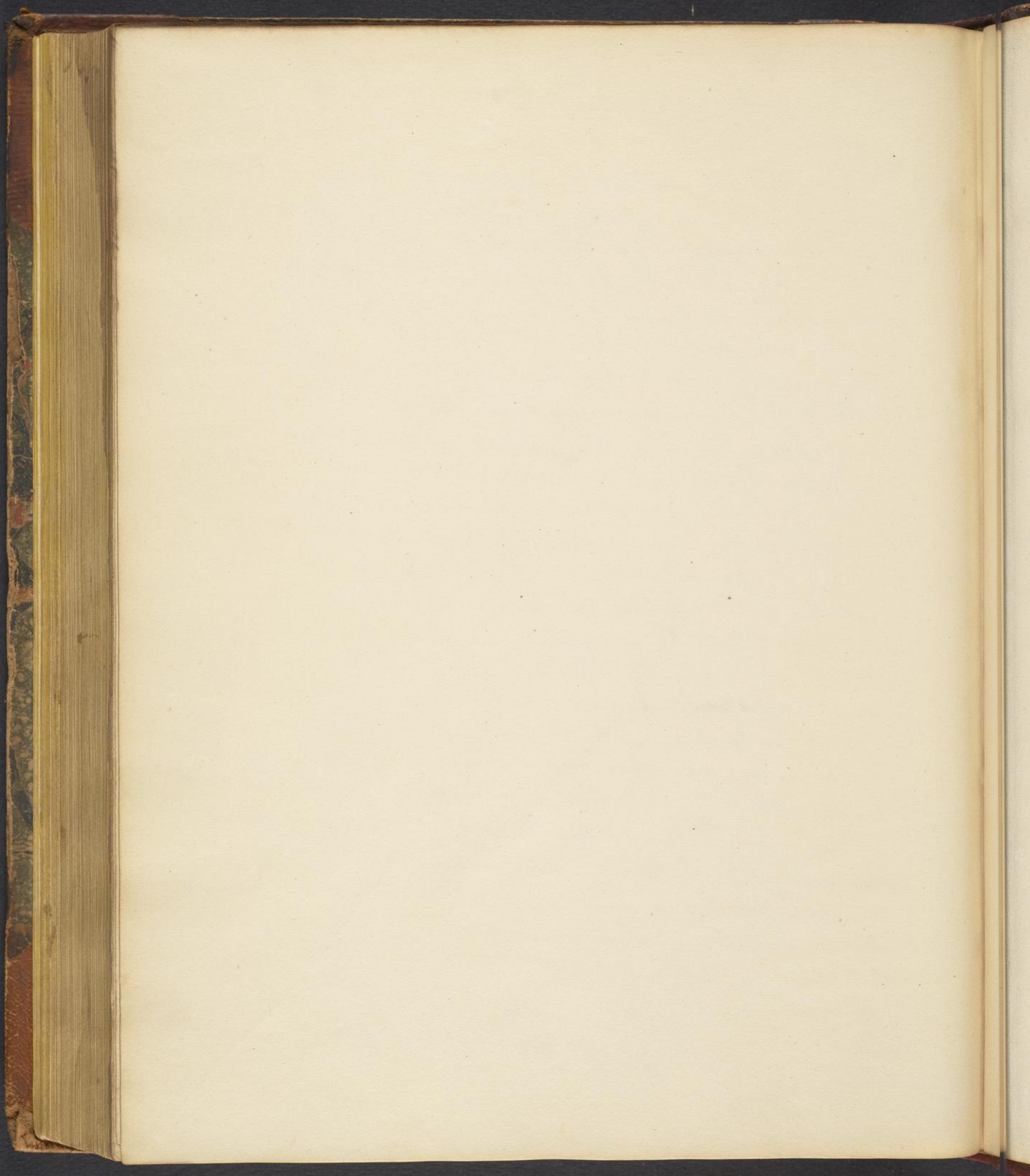
Notwithstanding these means it is sometimes necessary to puncture the bladder. There are 3 places in which it may be done 1st above the pubis 2nd in the rectum 3rd in the perineum — 1st above the pubis — When the bladder is felt above the crum of the pelvis, the parts are to be shaved, a small incision is then to be made, & the trochar pushed into the bladder —

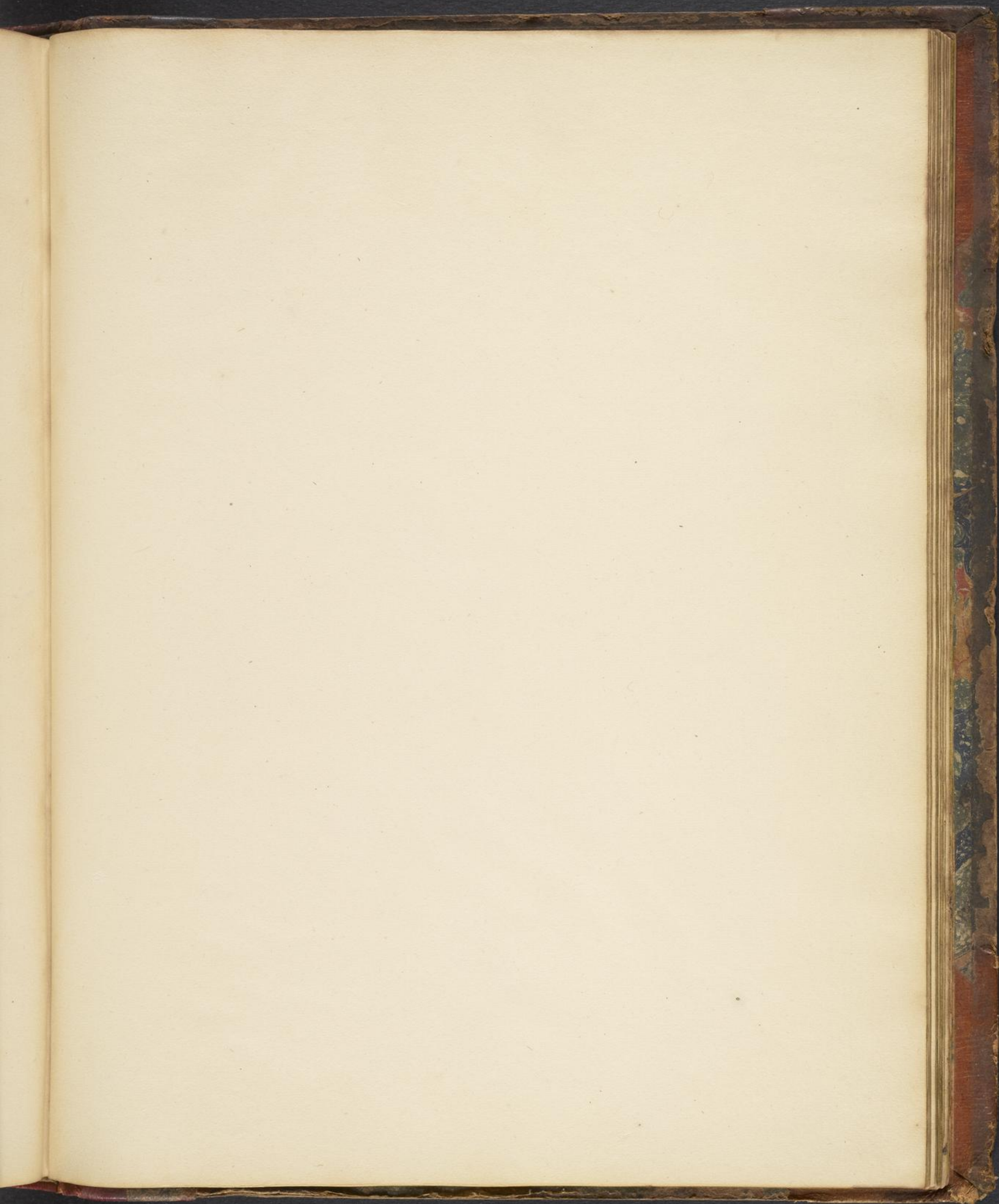
2nd When in the rectum, the finger should be passed into the rectum to about an inch above the prostate gland, it will serve as a direction for the curved trochar, which is then to be passed up along the side of the finger & pushed into the bladder — 3rd When in the perineum, an incision is to be made between the raphe scroti, & acceleratoris urinae vna elevator penis — the finger is then to be introduced into the rectum, & the trochar must be passed up along side of the prostate gland into the bladder —

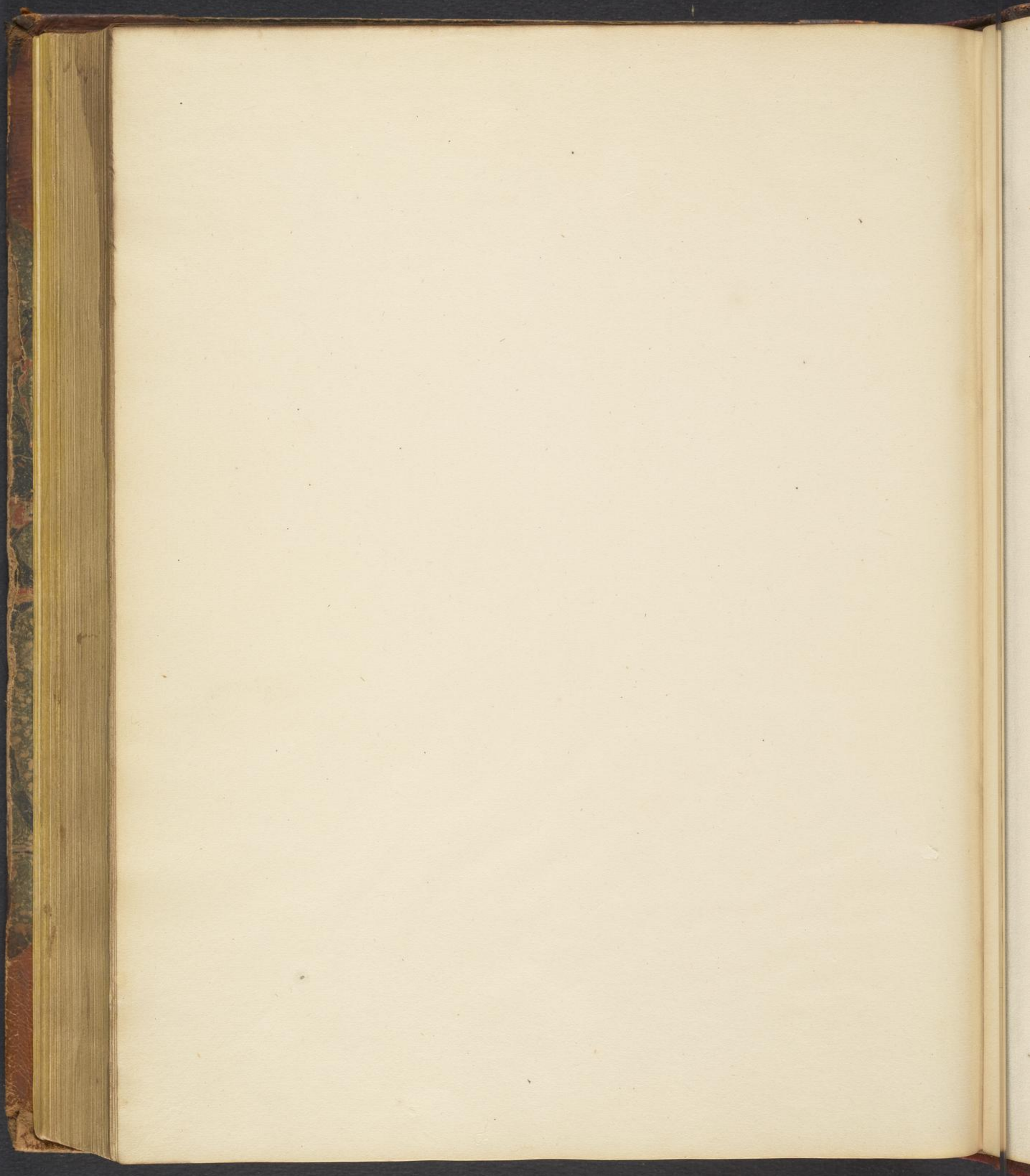
Ligatures 1817

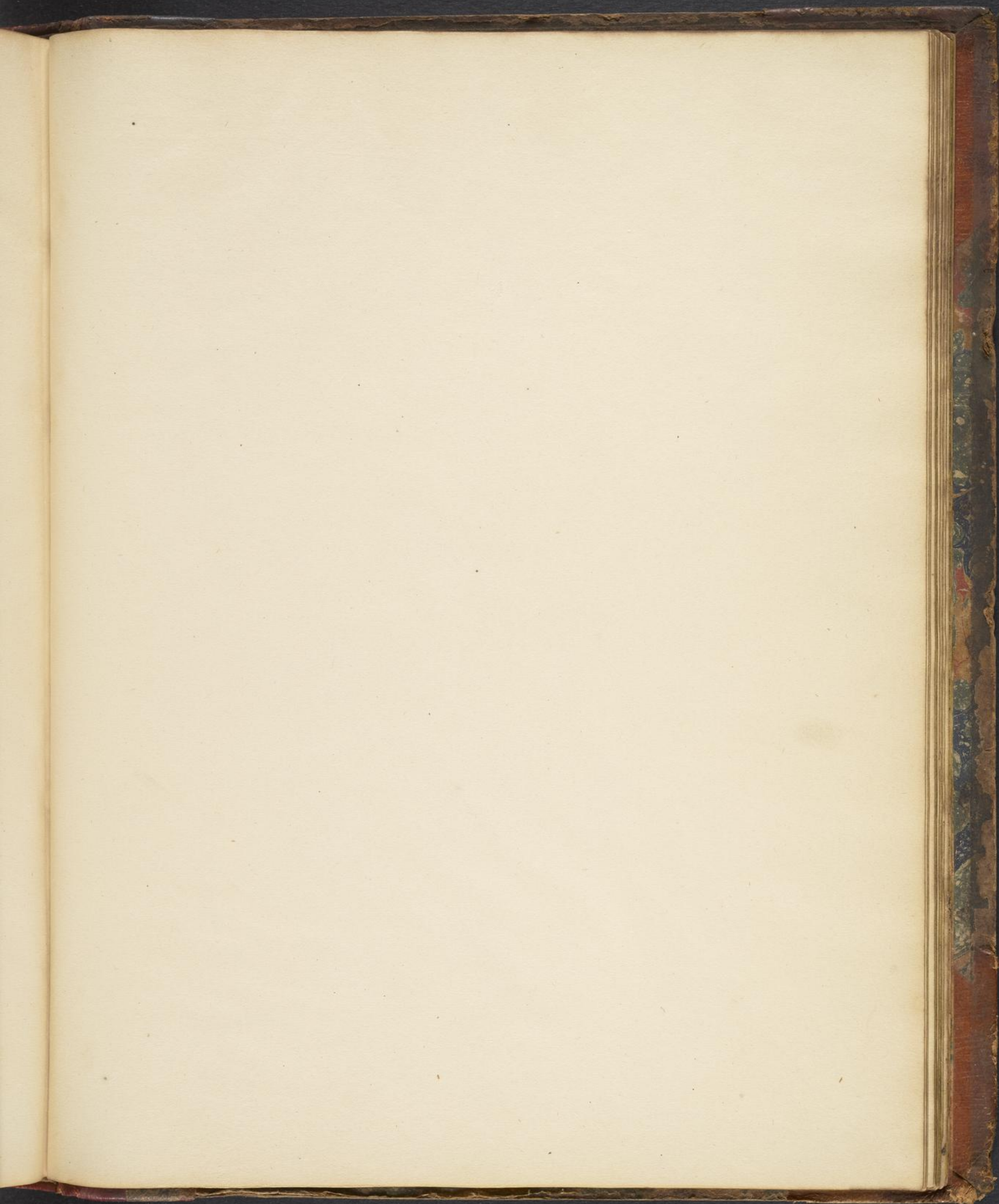
There are generally made of Flaxen thread, silk or animal substance. The leather ligatures are made of French Kid. The Epidermis is to be peeled off and the substance wet, when it is to be cut into strips is of an inch wide - it is then to be rolled between two smooth surfaces till it acquires a sufficient degree of firmness. From various experiments made by Dr. Dorsey & myself I have no hesitation in recommending them in all cases of hemorrhage. In the course of 3 or 4 days they are generally absorbed & come away - whereas the silk ligature is often times as many weeks & I have known one instance where it was six months before it came away. In the use of the leather ligatures care should be taken in bringing it away that the knot be removed - as from the compactness of it it is generally absorbed at the entrance of the wound ~~first~~ - to prevent this a detail of lint is to be introduced at the side of the ligature - by this means you prevent adhesion & can extract the knot after the ligature is removed. I was best to the use of these ligatures by observing that the adhesive plaster spread on leather & applied to wounds was generally absorbed in 2 or 3 days where matter had spread over it.

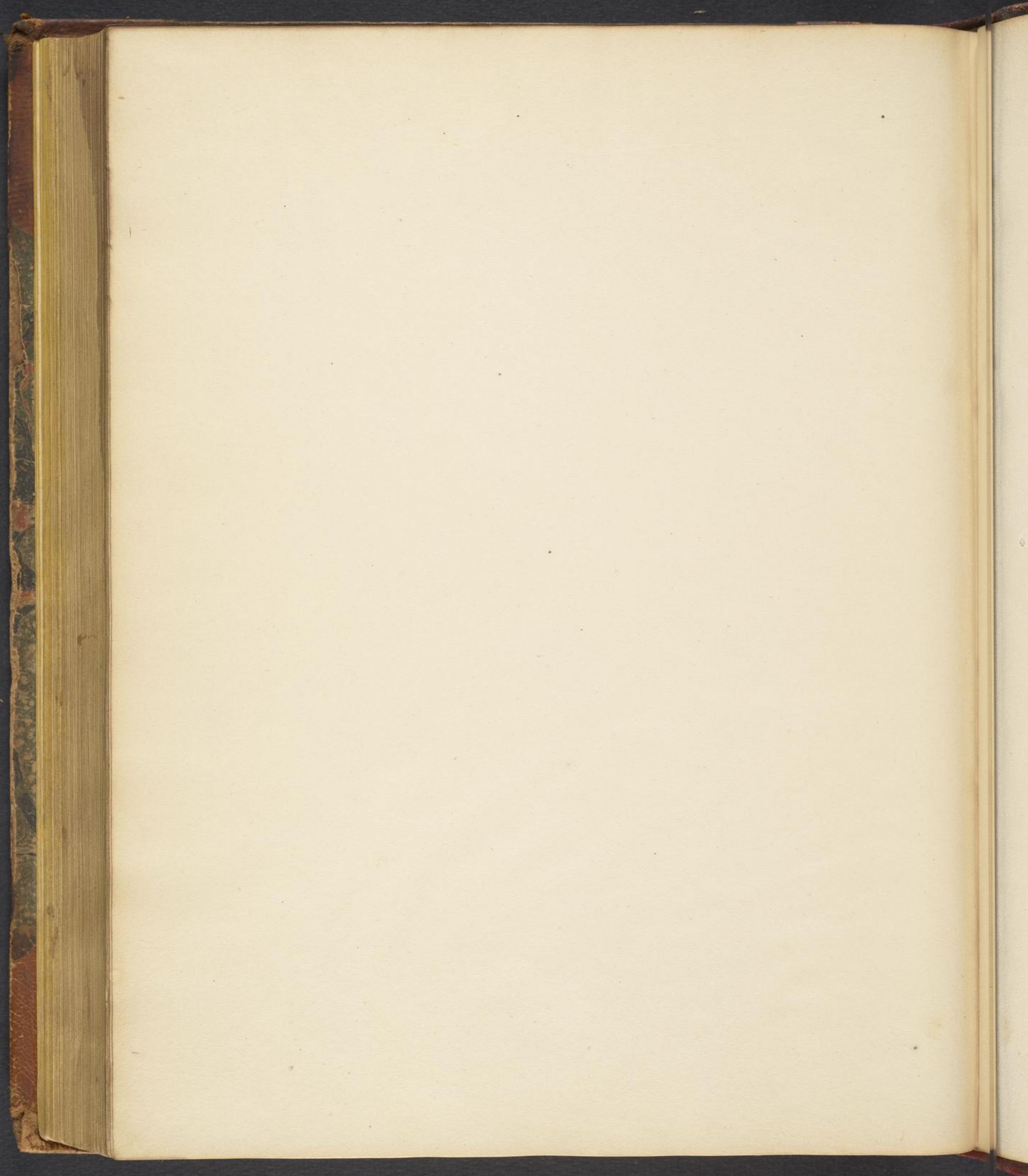


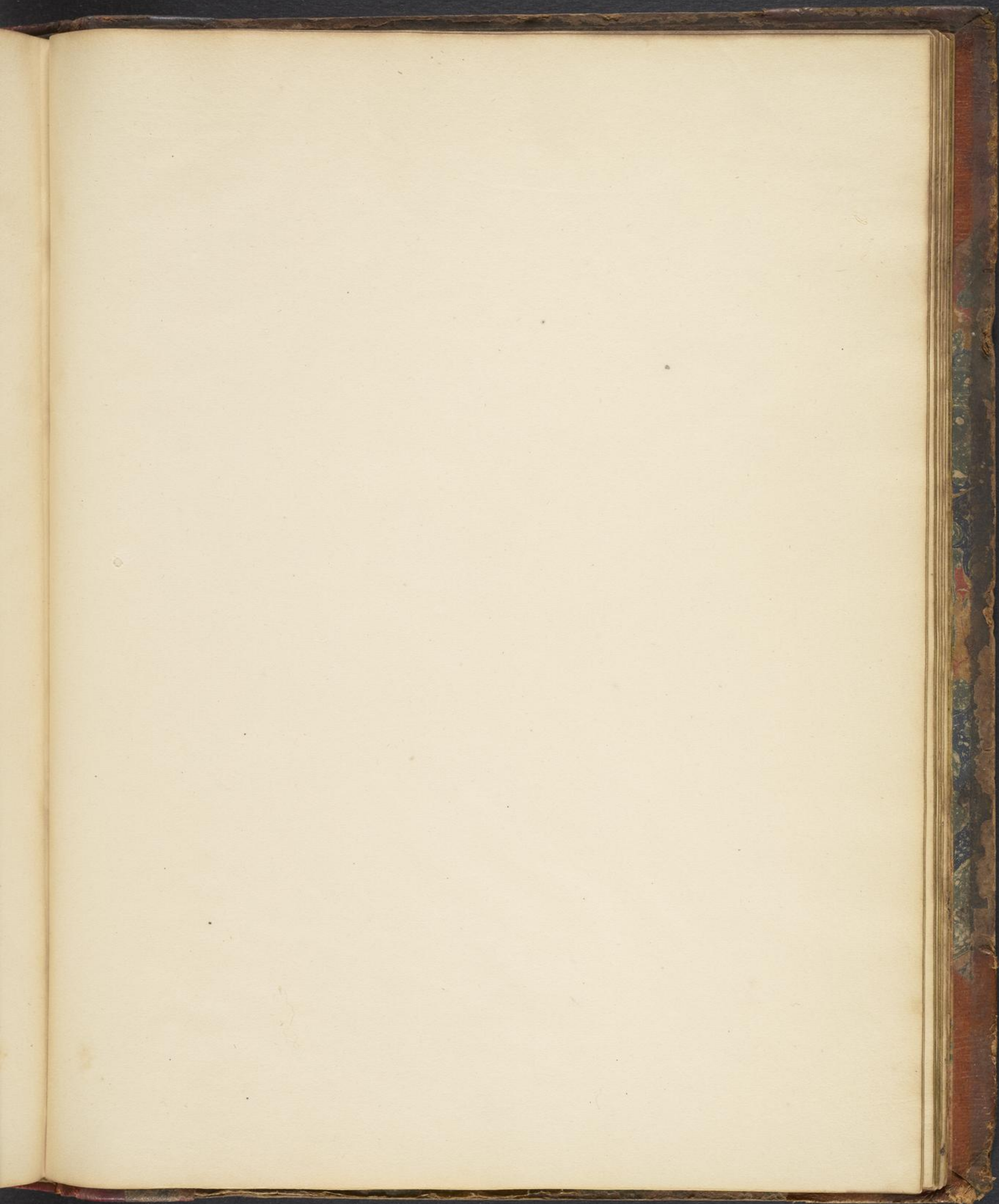


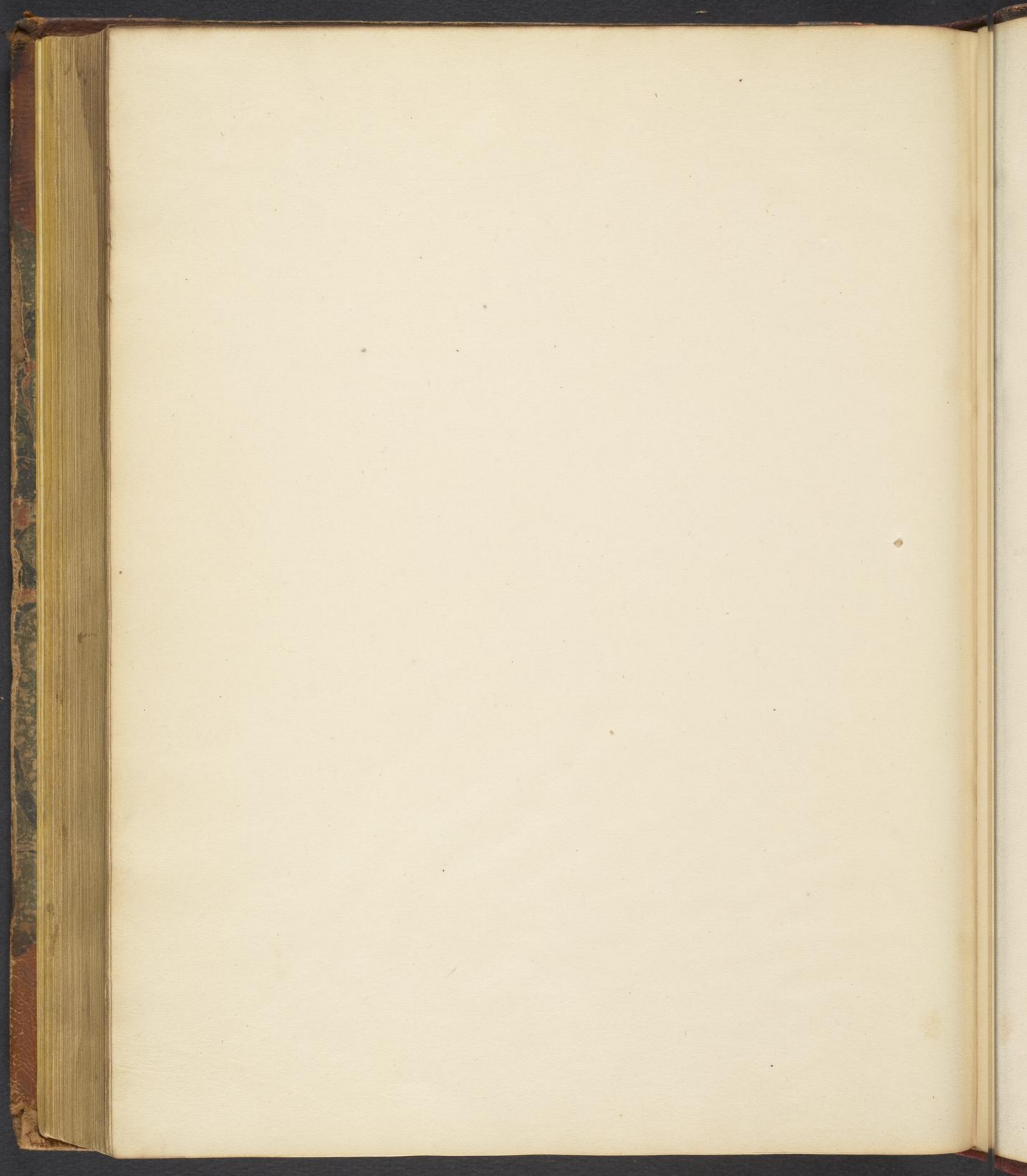


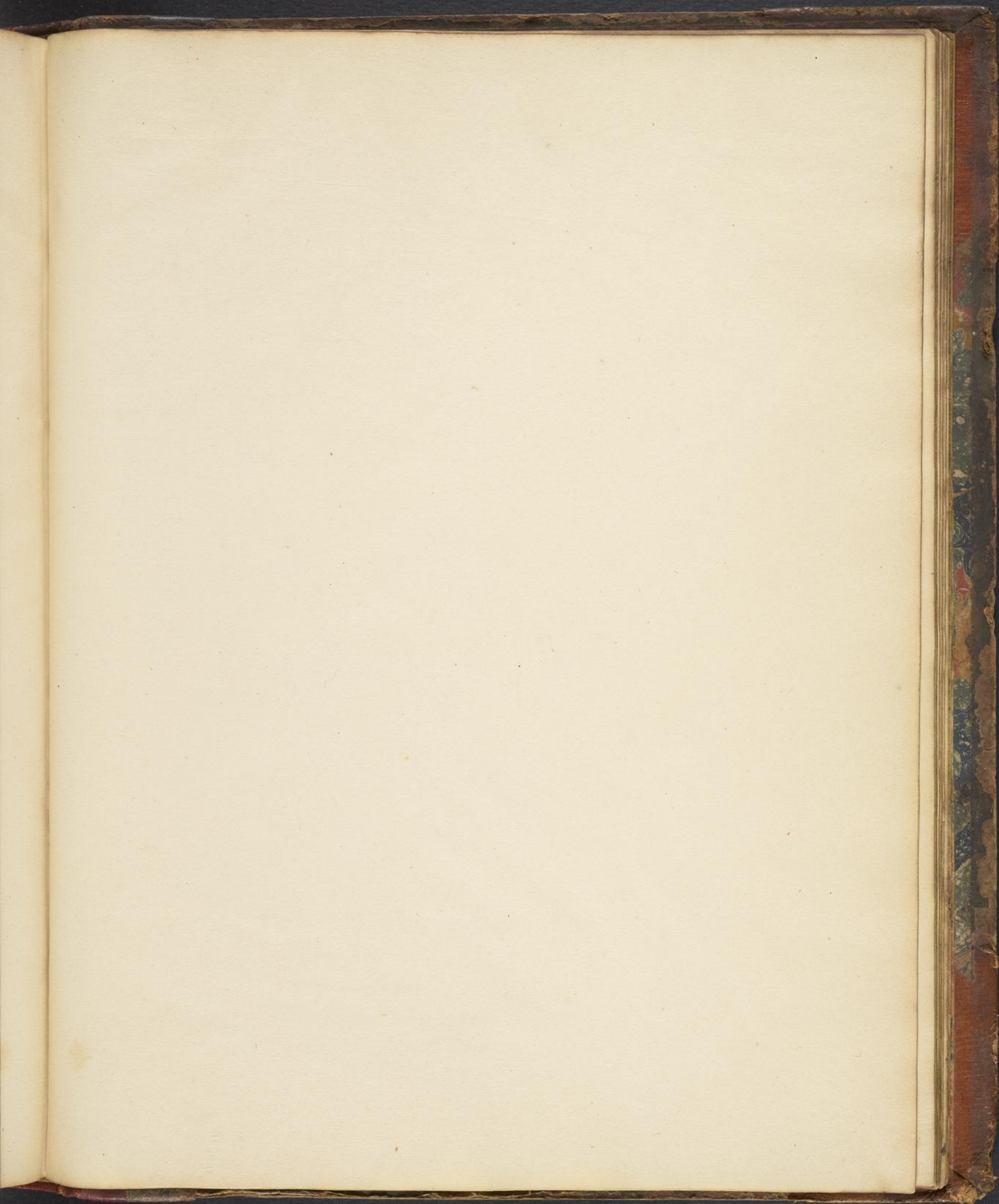


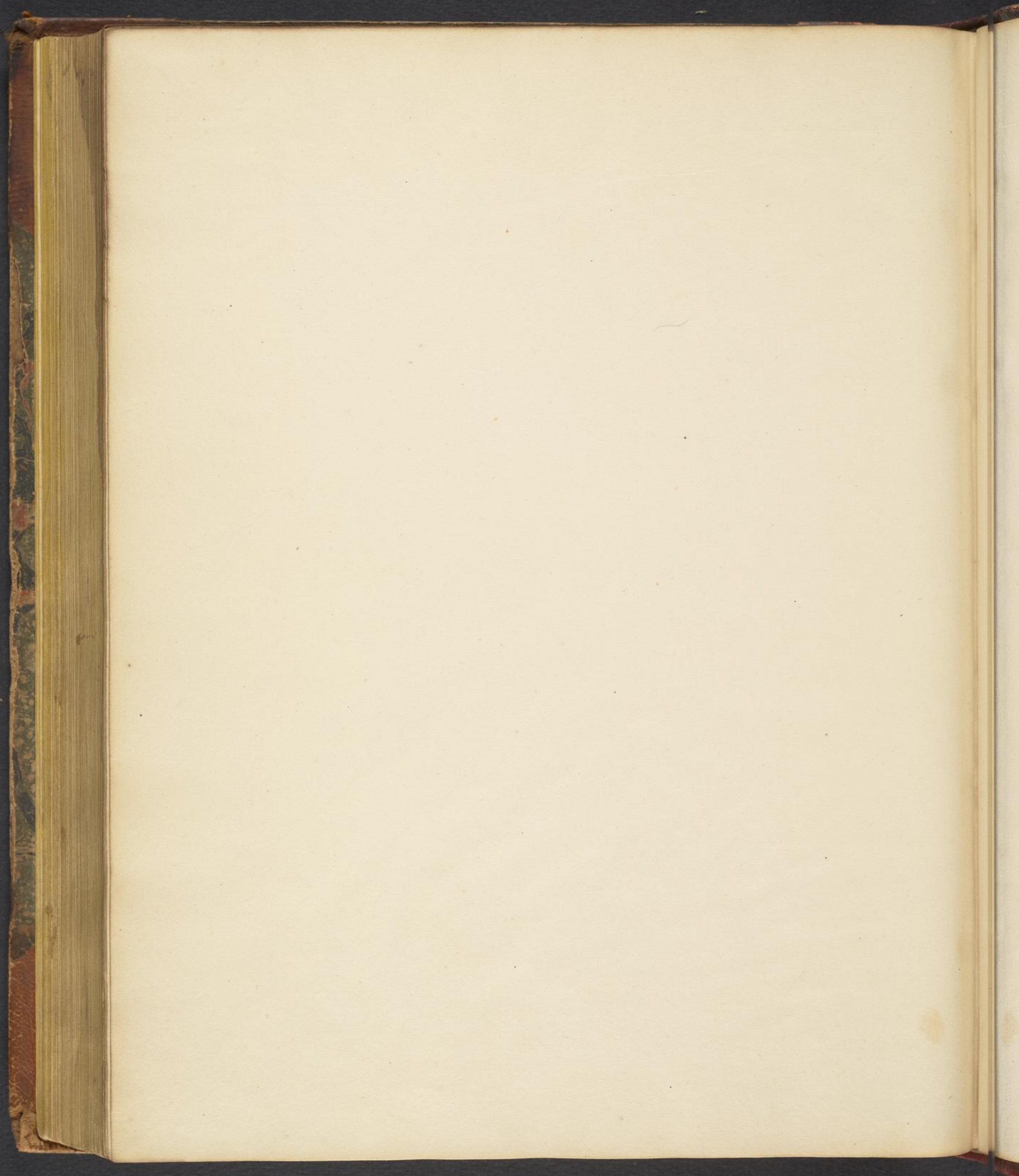


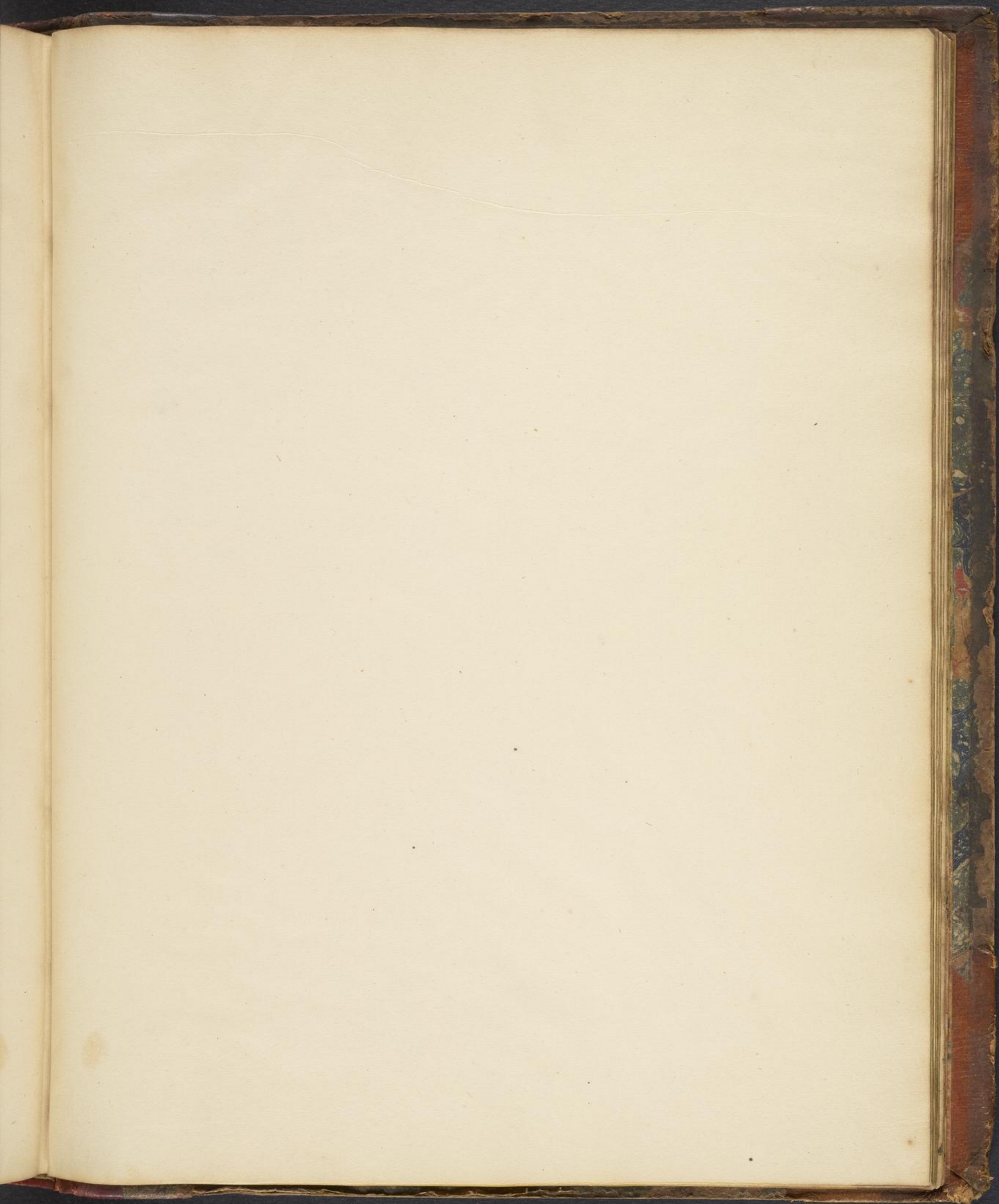


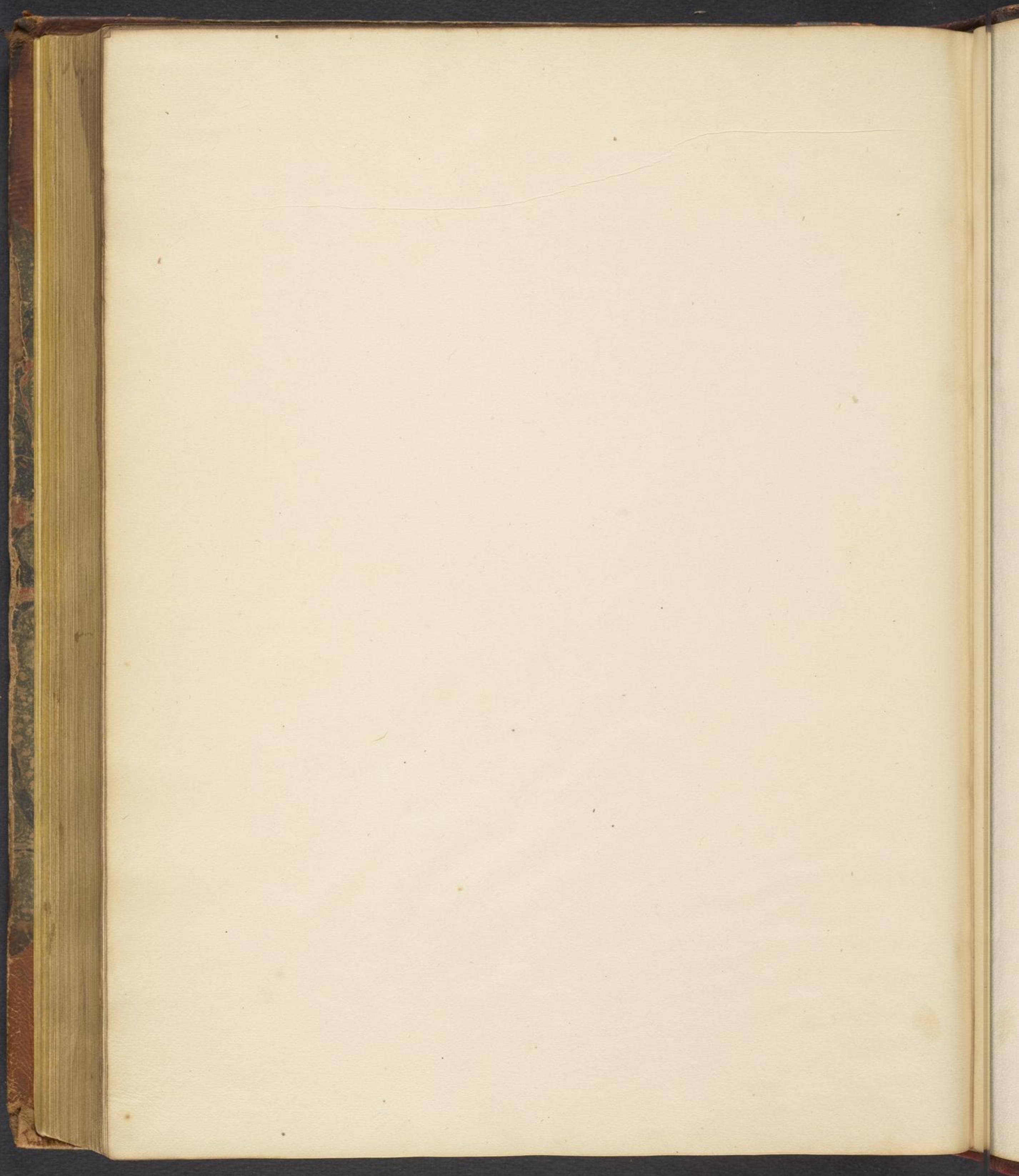


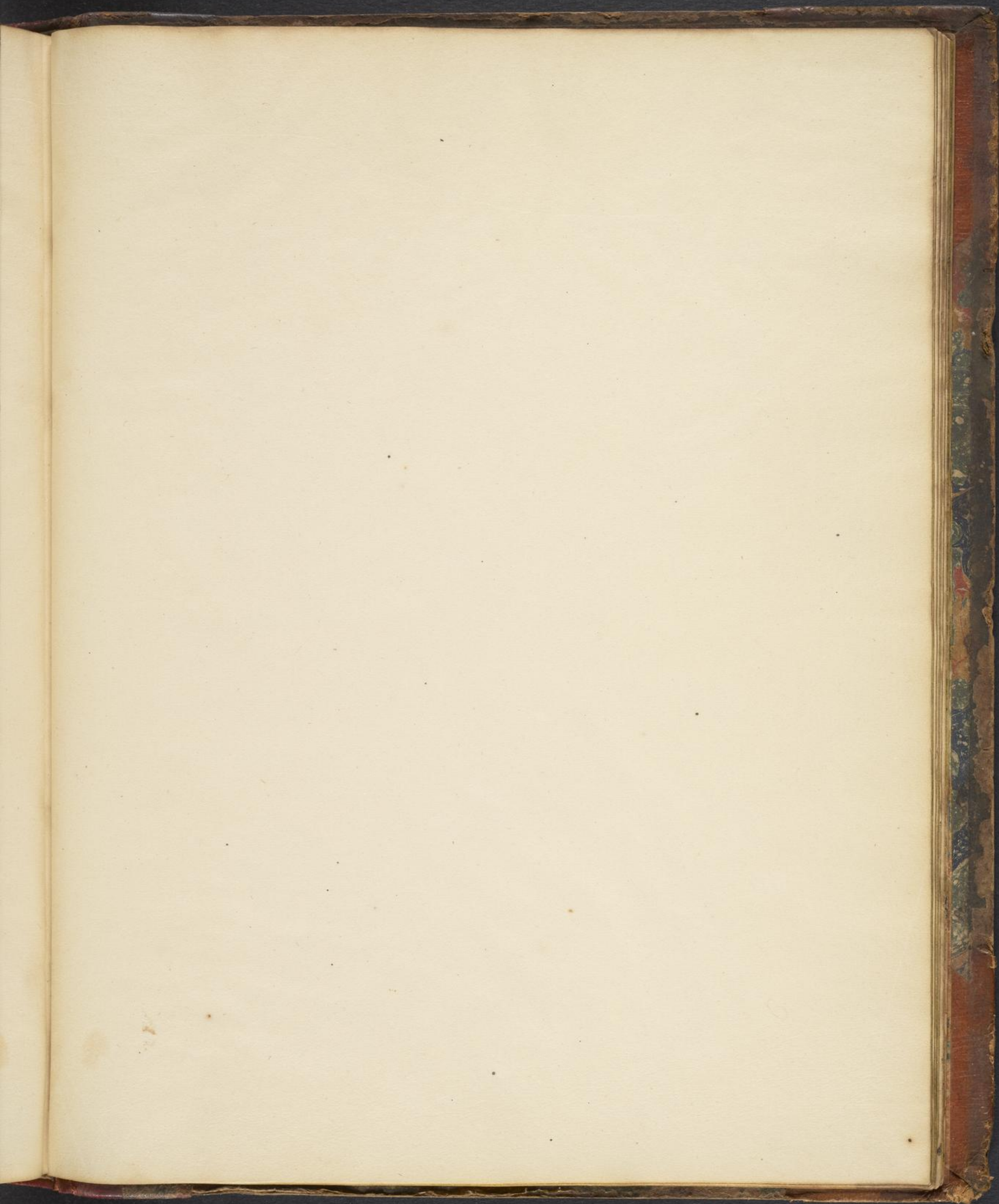


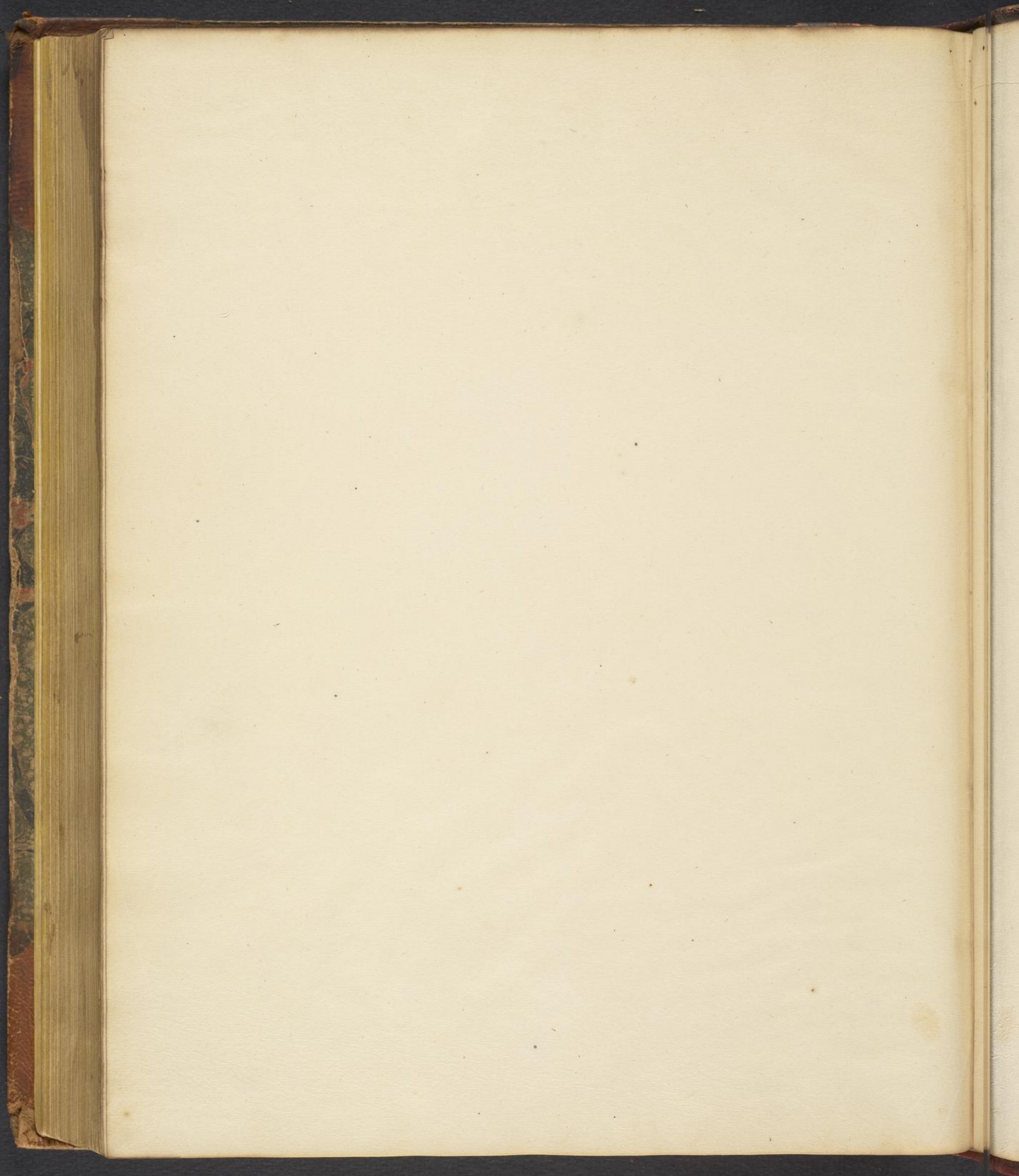


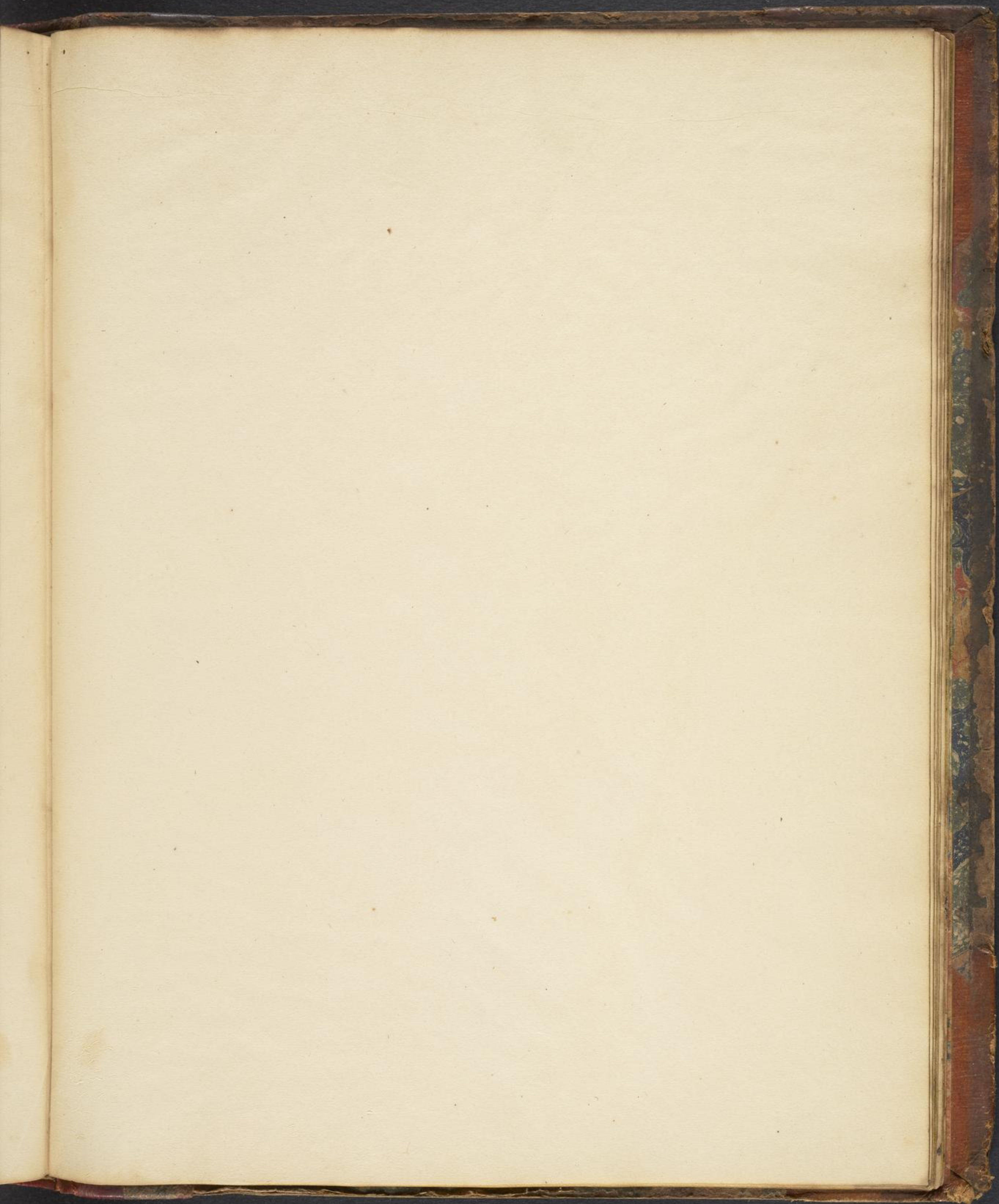


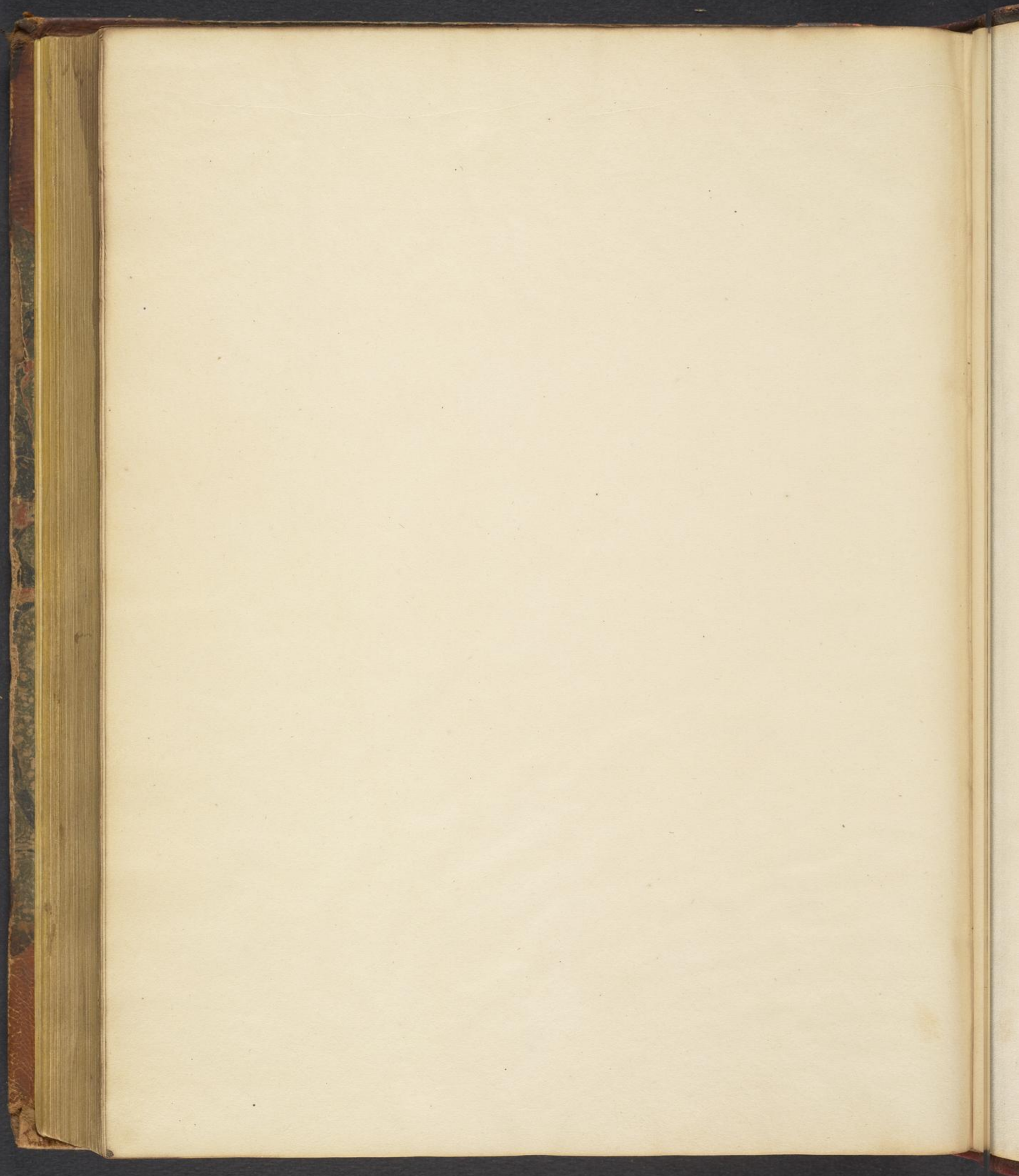


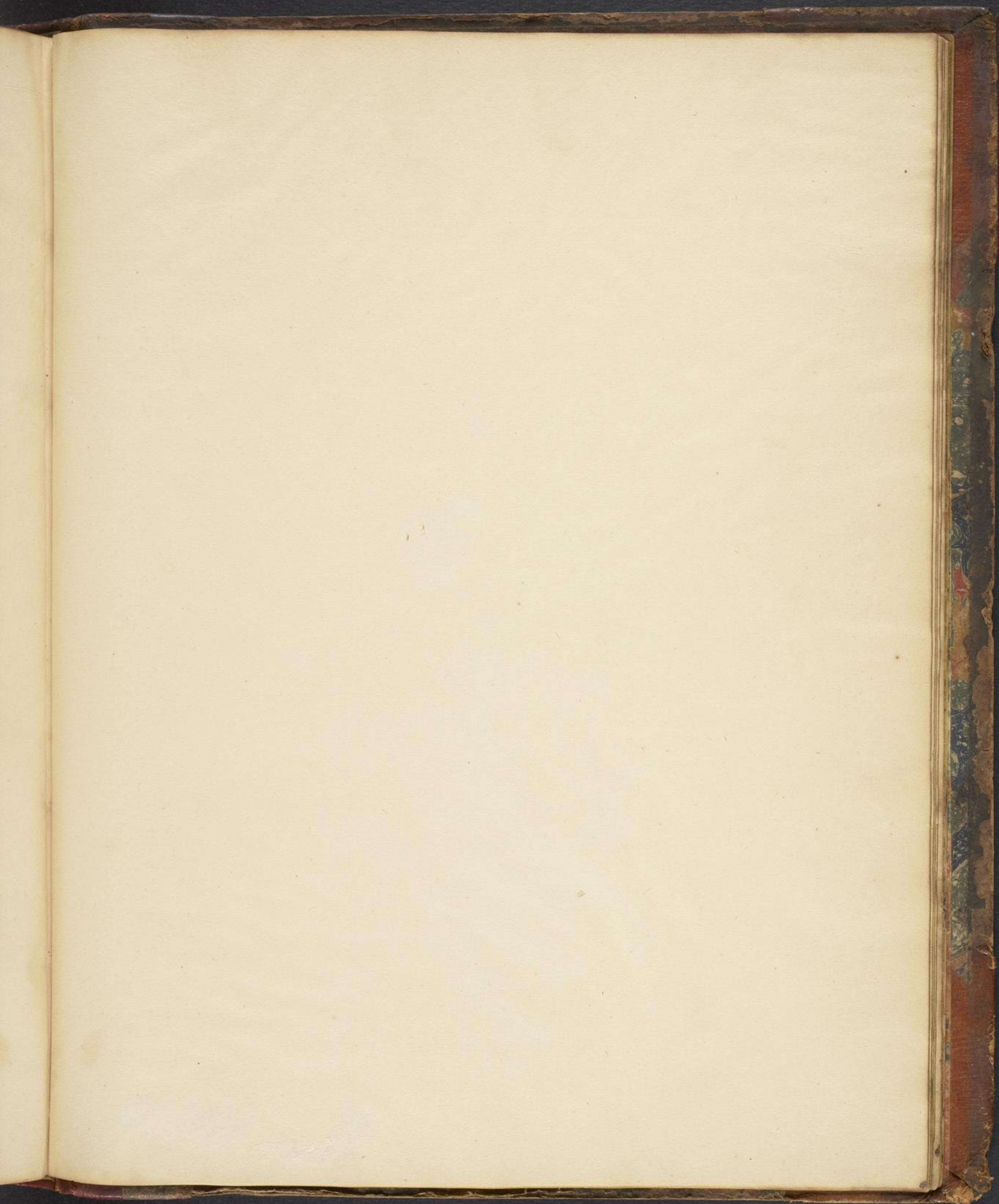


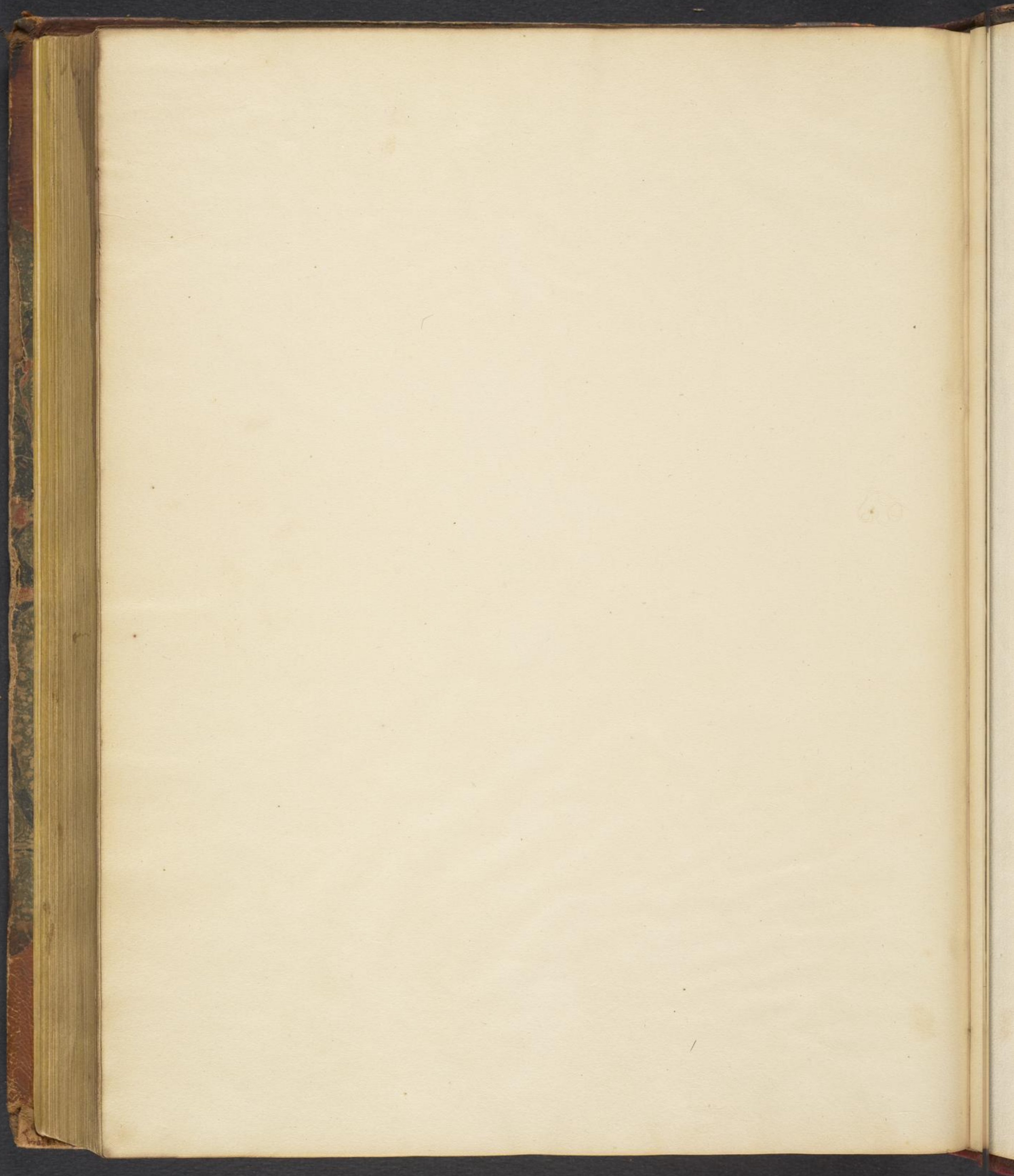




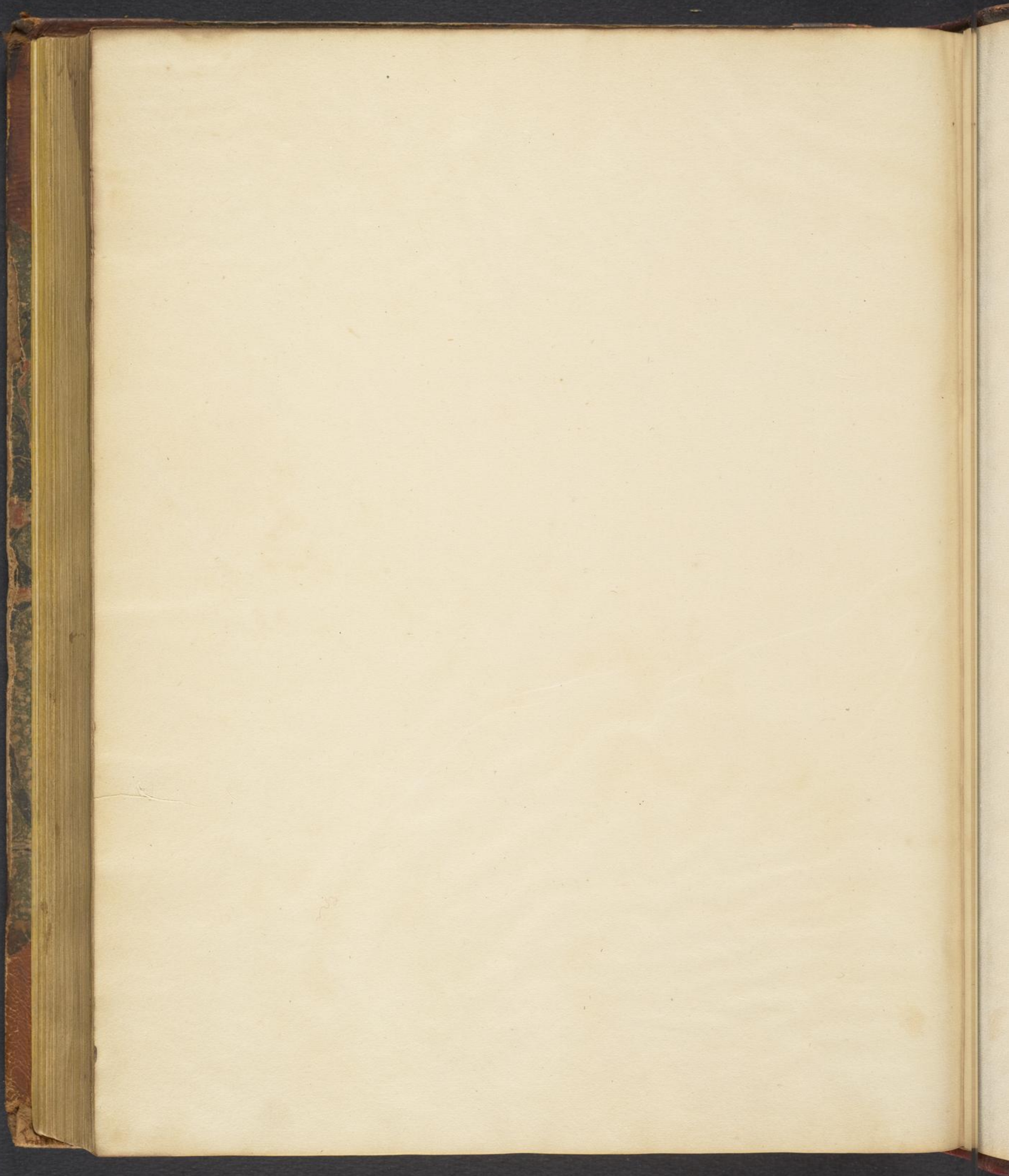


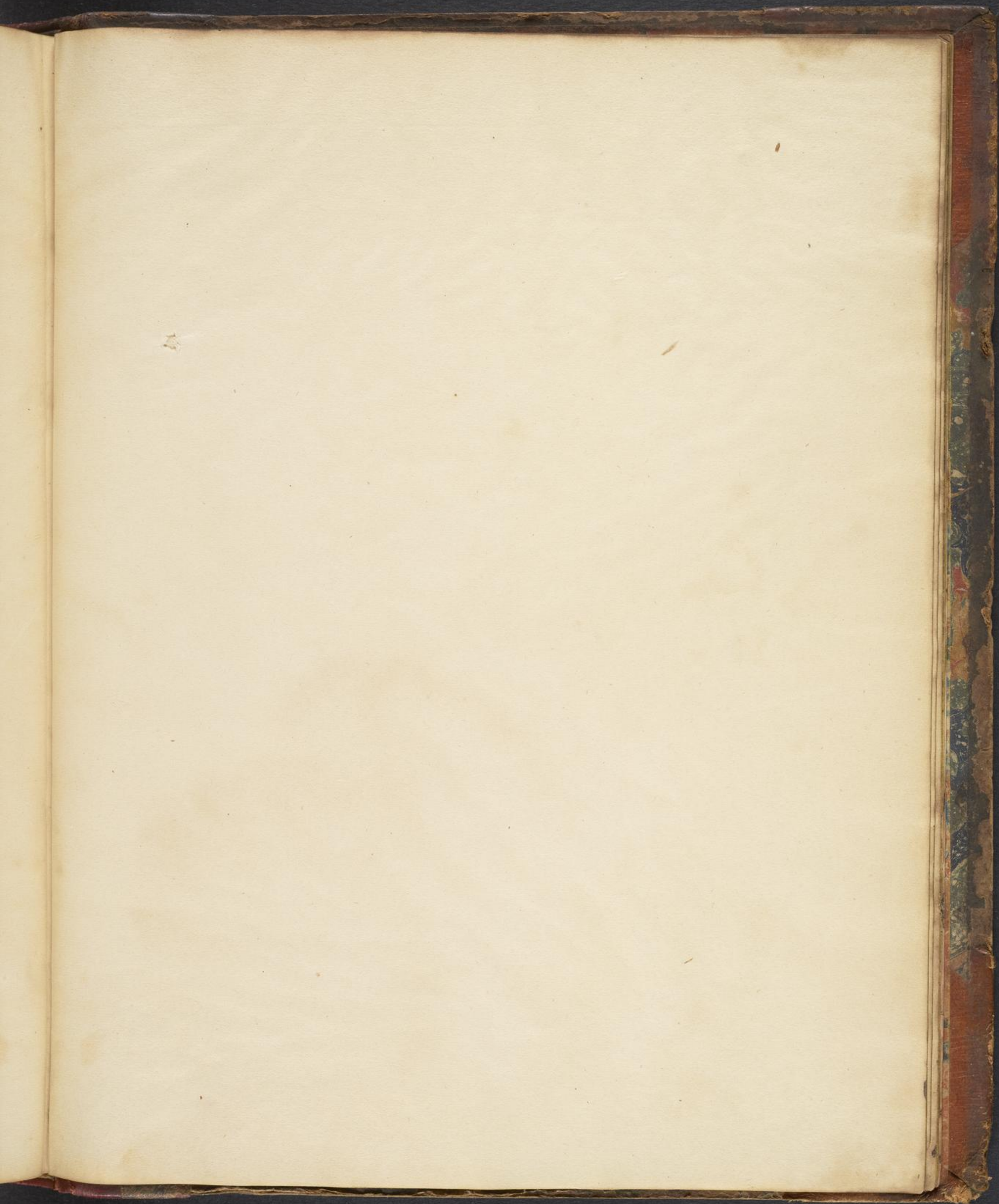


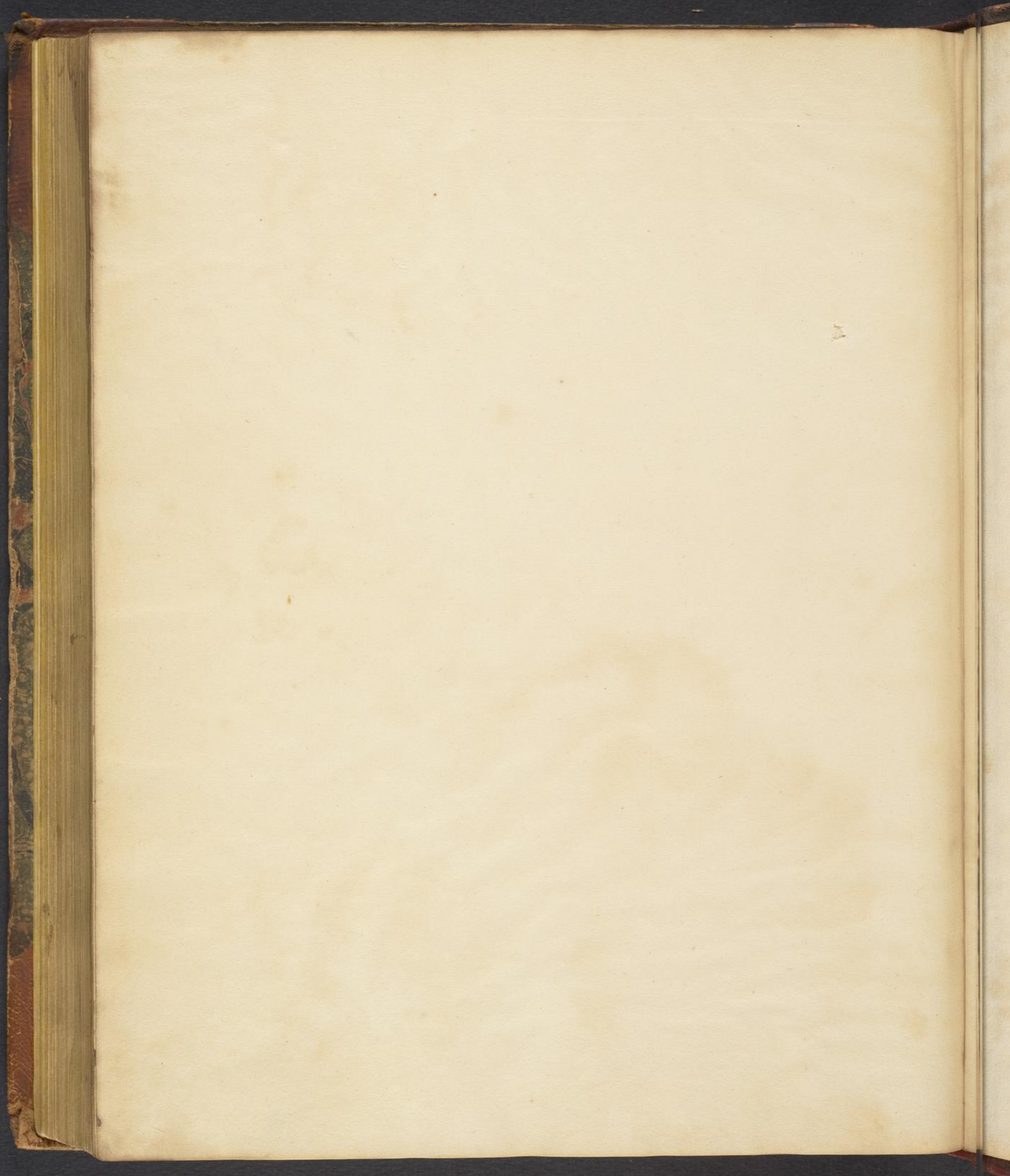




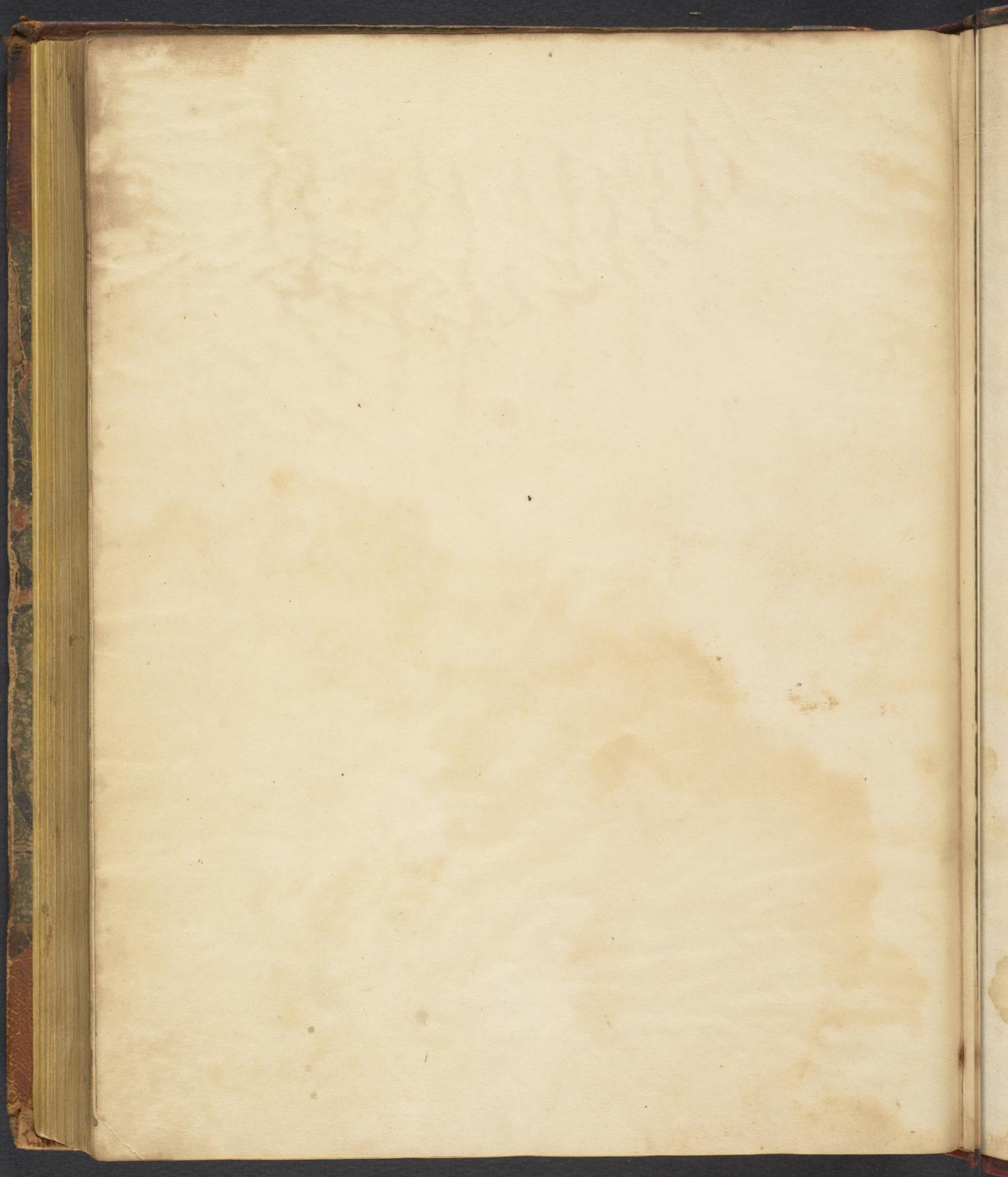


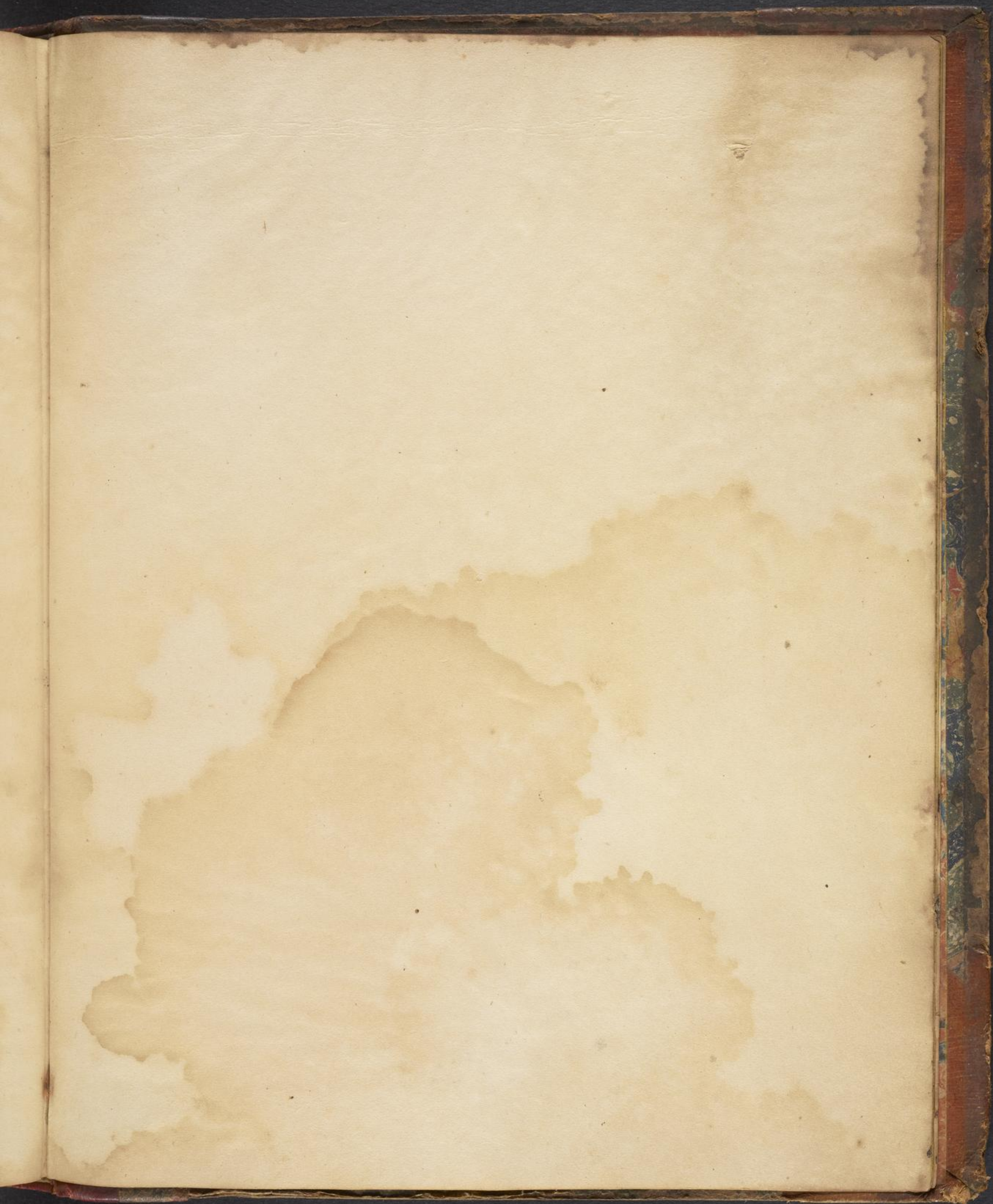


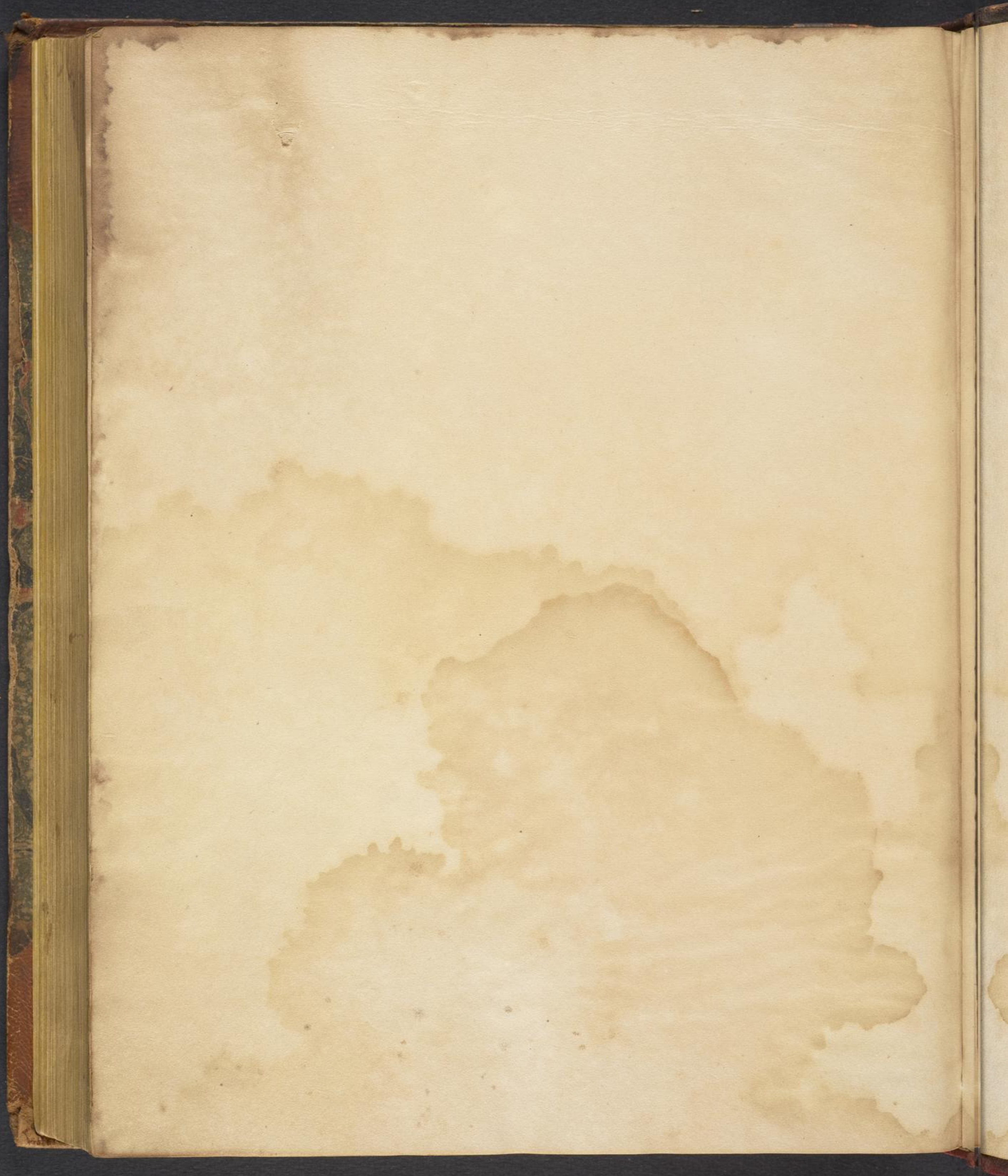




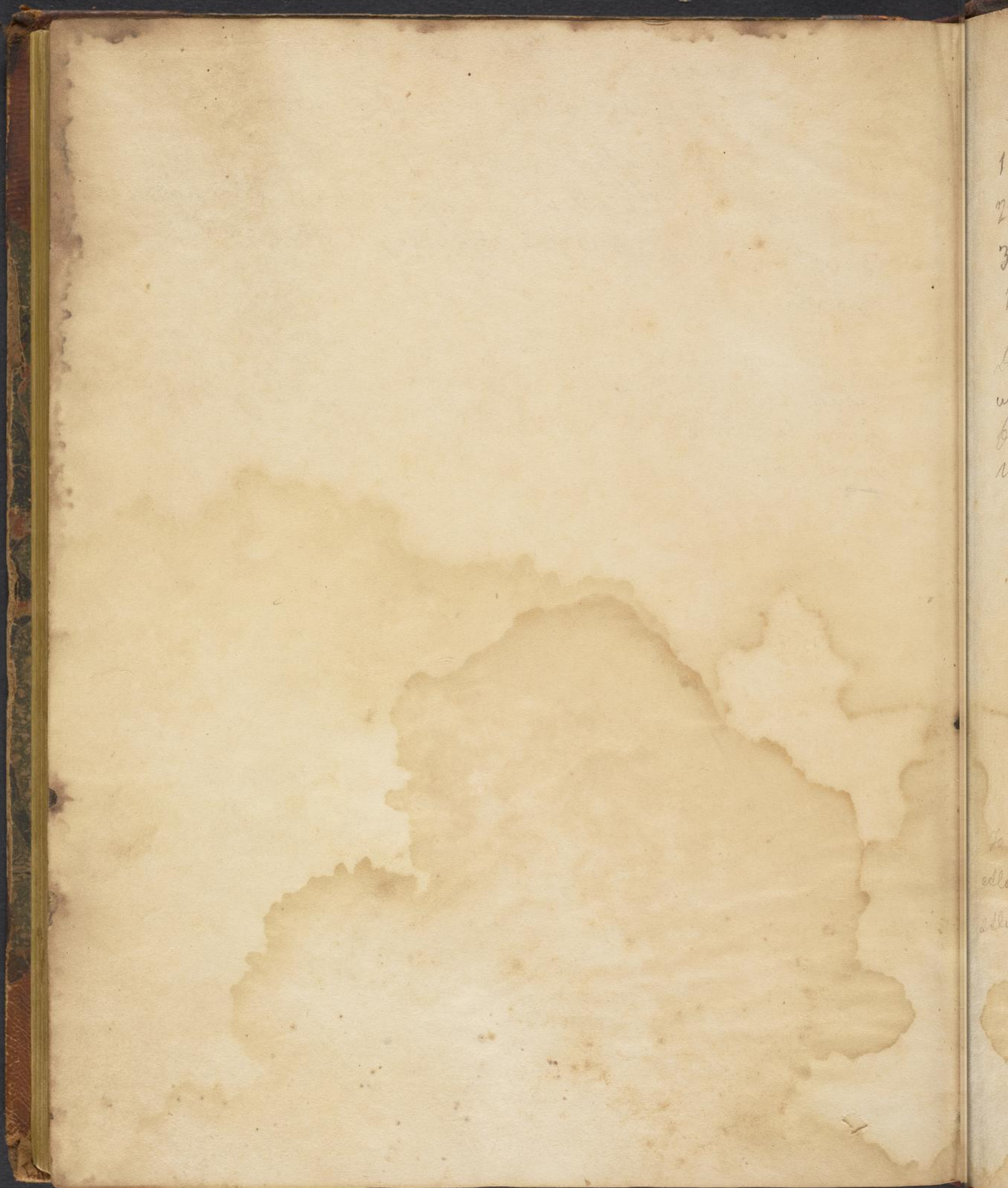












Dr James

Febr 20 1818

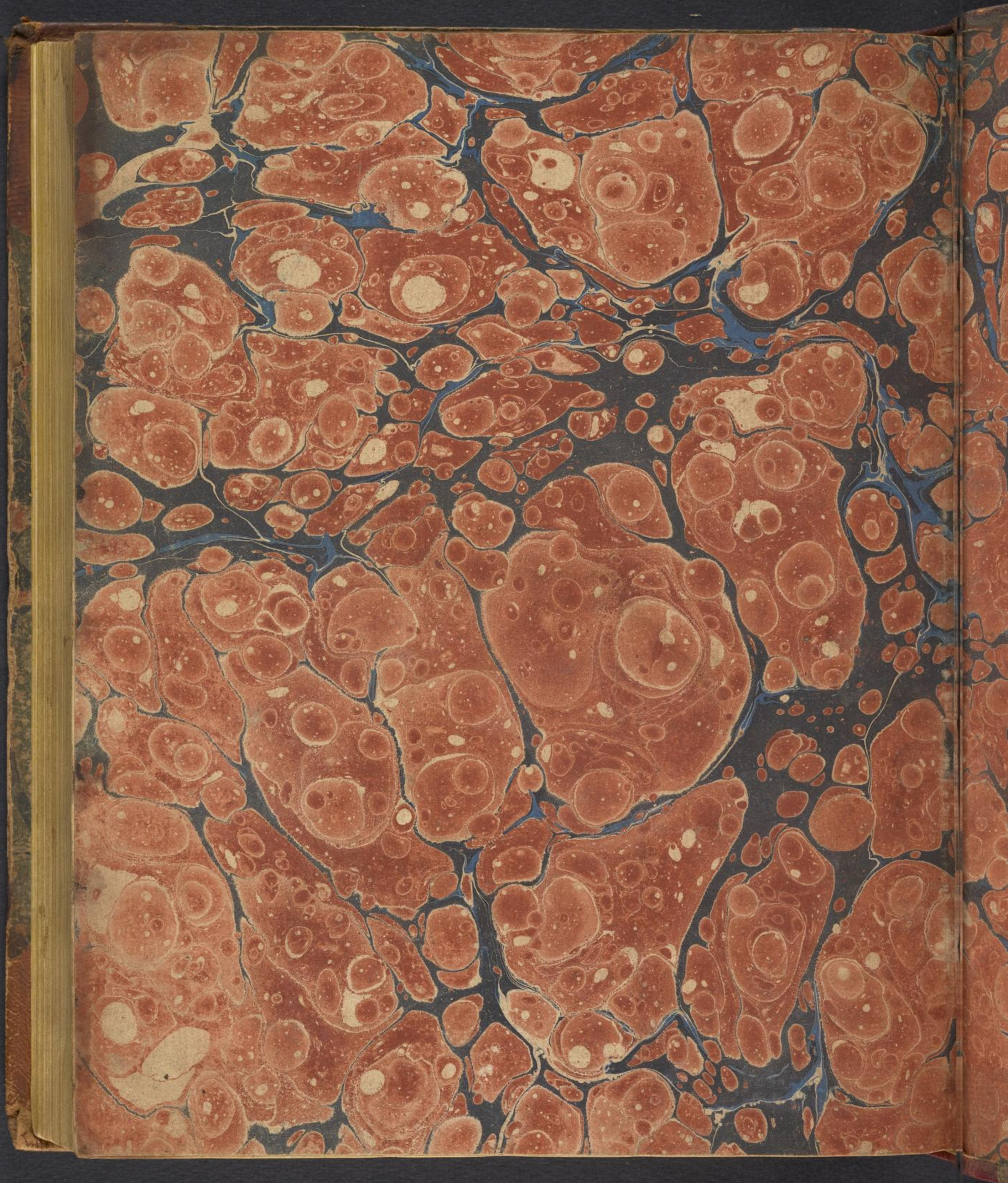
Inversion is divided into 3 kinds

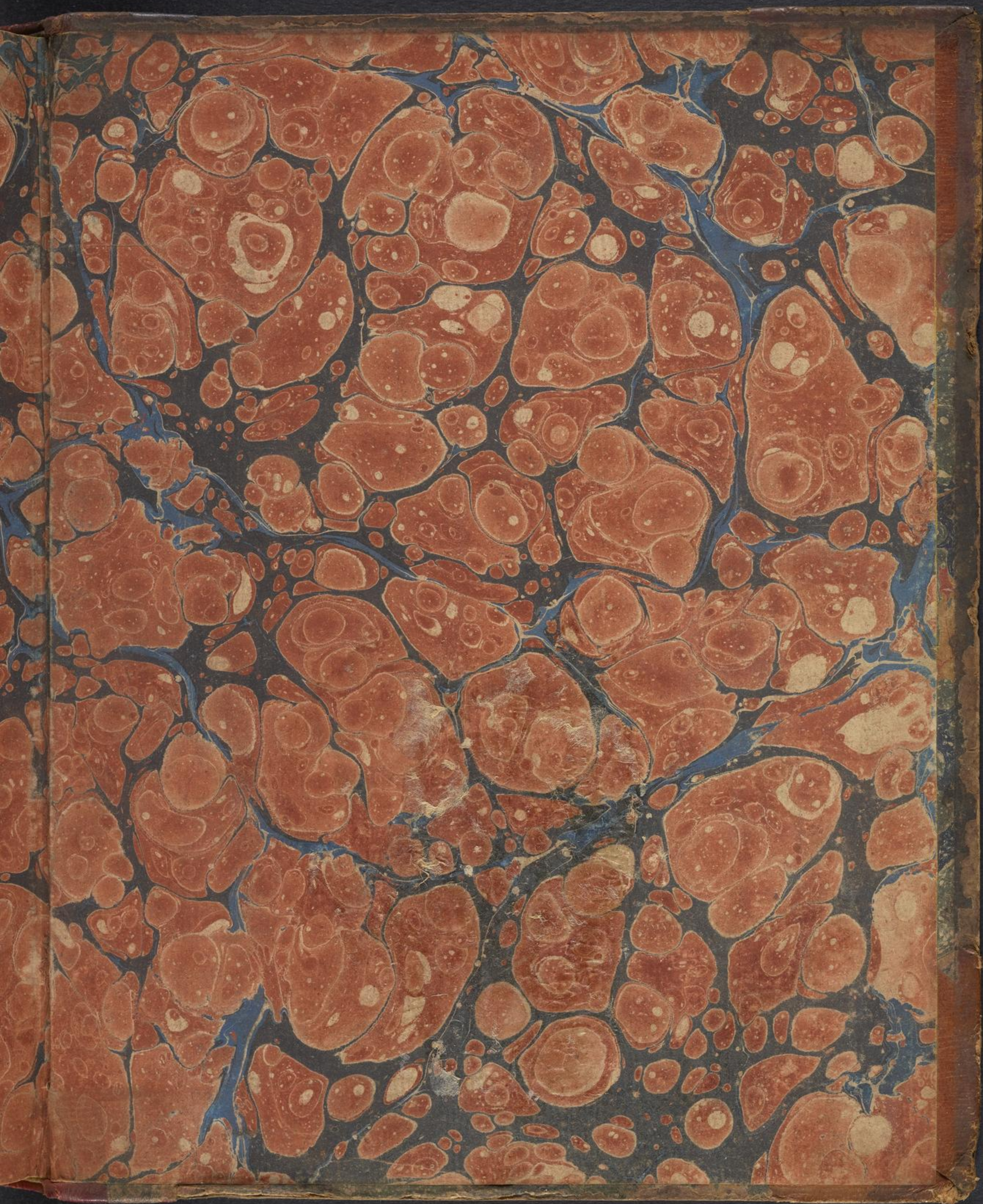
- 1st Simple depression of the fundus
- 2 where the fundus is engaged in the passage
- 3 where it protrudes through the external parts

Dr Deverge recommends in cases of partial inversion where it is impossible to return it to grasp the fundus & drawing it entirely out of the vagina -

Dr Hackett a French Physician is the person alluded to in the Lib. Blas under the title of Dr Sangrado
See his life & see Medical Museum

To the removal the casture habit of females the Lib. Doctoa cum edloe of the dyspnoea is best, double the quantity of blood may be used than is here prescribed - Case 1820







PHYSICK & S
LECTURES





